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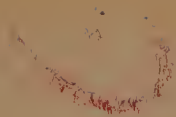
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# THE ECONOMICS OF TAXATION

BY

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"Economic Science and the Common Welfare"*



NEW YORK  
HENRY HOLT AND COMPANY

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*Printed in  
the United States of America*

## P R E F A C E

With the exception of courses in "Value Theory" or "Value and Distribution," and, occasionally, a few others, the so-called "advanced" work in the economics departments of many American colleges and universities is very much more largely descriptive and narrative in nature and puts far less strain on the reasoning powers of the students than the general course in *Principles*. This fact has recently led to the suggestion that the course in *Principles* might well be given after, rather than before, most of the other courses. (Professor John Ise, in *American Economic Review*, Dec., 1922.)

My own view is that what is needed is not a postponement of the *Principles*, but a thorough revision of the courses which follow it, so as to make them not a less, but a greater test and training of the reasoning powers than the beginning course. The student should no more have his first course or courses in economics devoted almost solely to the description of economic life without fundamental analysis, than he should have his first university course in physics devoted merely to a description of the lever, rope and pulley, and

other mechanical appliances, without the explanations; theorizing, problems, etc., that ordinarily make up much of a course in physics. And it seems to me, from my experience in teaching this material in mimeographed form, no more impossible—or difficult—for a student of taxation who has already had a thorough course in the *Principles*, and perhaps in *Money and Banking*, to master such theories as are presented in this book, than it is for the advanced student in physics, who is taking a special course in (say) *Light*, to go more deeply into the theory of that particular subject than he did in his general course.

Only a thorough study of cause and effect relations in taxation can, in fact, make any one a competent leader of public opinion on tax problems. And this is exactly what college and university students in public finance are not generally encouraged to undertake. To know that this, that or the other tax system was applied in any country between given dates, to memorize the amounts of money expended for different public purposes, to learn that government receipts can be classified into gratuitous receipts, taxes, fees, etc., and to acquire various other bits of scattered information about the revenues and expenditures of many countries in many periods, does little or nothing to develop the student's judgment or to make him a trustworthy leader of opinion. As to whether

the recognized leaders of the public on matters of finance ever will be chosen from among those who, as students, have learned to trace cause and effect relations rather than from among those whose teachers have encouraged them to specialize on the superficialities of the subject, we cannot say. It is not unreasonable to suppose that again in the future, as many times in the past, the so-called "leaders" whom the public appears to follow will be men of no real comprehension of the problems, like those they purport to lead, chosen for high position because they share the ignorance and the prejudices of those who do the choosing. So, likewise, the "experts" selected to serve as legislative advisors and otherwise in questions of taxation may often be thus selected because they can give plausible if sophistical reasons for socially undesirable policies or because they can point out how to do with precision and finesse things that might better not be done at all. Nevertheless, it is leadership of a different kind from this which we should covet for our students in the years when they have become, some of them, prominent in economic investigation, journalism and public life.

The objection may be raised by some that inductive verification of conclusions is lacking in this study. This I somewhat regretfully but freely admit. The task of inductively verifying any considerable part of the theory herein presented, would be, if not abso-

lutely impossible of fulfillment, at best a task of such difficulty as to make me despair of carrying it out during any reasonably short period. If such work is at all feasible with present statistical data, and in view of the many confusing factors at work for which allowance would have to be made—by means of the so-called “method of residues”—it needs to be done piecemeal and, perhaps, by different persons specializing on the various kinds of taxes investigated. To date, so little of such work has been done that there is perhaps some justification for a book on the general theory of taxation the conclusions of which are not buttressed by induction.

There are, it might be pointed out, two classes of professed economists who plead for more use of induction. The one class is composed of economists who realize that dependence on deduction alone involves risk of error, not because the method is itself untrustworthy, but rather because even a well-trained mind will sometimes overlook some significant premise which has an important bearing on the problem at issue, and because a long and involved labyrinth of reasoning leads often past many a concealed pitfall of fallacy into which the unwary are likely to stray. Induction and deduction serve to check and verify each other and, when the results are not at first consistent, the inconsistency may cause a reëxamination of the in-

ductive or the deductive reasoning which has been followed, or both, leading to a correction of mistakes that might otherwise have been overlooked. Such an economist will recognize that lack of available data may sometimes compel almost exclusive reliance on deduction, as incomplete development of a subject sometimes compels almost complete reliance on direct induction. But instead of rejecting a deductive study as valueless because inductive verification is lacking, such an one will merely scrutinize the premises and the deductive processes with exceptional care lest error may have crept in; and he will value the more this means of reaching conclusions because no other is available. Nevertheless, he will be constantly on the alert to see if in any way the conclusions reached appear to be inconsistent with any facts which offer themselves by which they may be tested.

To the opinions of the other class of critics of deductive argument—among whom are some professional economists—no regard need be paid. These are persons who object to deduction and affect to despise “theory” because they do not understand it. They have never learned to reason reliably when the reasoning processes necessary are labyrinthean. While claiming to be interested in “facts” and in the “inductive method,” they are as incapable of using induction effectively as of using deduction; for when the phe-



nomena are complicated and allowance has to be made with meticulous care for all sorts of disturbing circumstances, inductive investigation may be more difficult and complicated than deductive. Such professed economists as we are now considering have so little comprehension of the canons of logic and the methods of the physical sciences that they are unable to distinguish between narrative and descriptive matter coupled with a little running commentary of observation, on the one hand, and real induction on the other. I am not unmindful of the short-comings of this book, and it would please me very much indeed to see careful inductive investigations made on the subject of the incidence of taxes—if and where adequate data can be secured—by truly competent practitioners of the inductive method. Such inductive work as Fisher, Mitchell and a few others have done and are doing in the field of monetary and banking theory would, if it led to conclusions in the field of taxation consonant with those reached herein, appreciably strengthen their authority and, if it led to qualifications not herein noted and a consequent improved formulation of the deductive reasoning herein presented, it might be even more valuable. But though I certainly realize that my own study falls far short of the ideal in more than one respect, I shall not be unduly disturbed by criticism of it as “too theoretical” coming from persons



who have no comprehension of how "theoretical" a really worth while *inductive* study would have to be. And I strongly suspect that I have here presented enough matter for a single volume, and that there is some advantage at this particular juncture in the development of the subject, in bringing together between the covers of a single book investigations into the probable incidence and effects of the various principal kinds of taxes.

One more general observation may perhaps be hazarded. I am profoundly convinced of the importance of historical studies as a means, among other things, of enabling us to understand how men think and act in various circumstances. Those who have any considerable acquaintance with the struggles, the changes of policy, the rise and fall of dynasties, of empires, and of religions, and the ascendancy and decline of political parties and of political and economic theories and institutions, of which history tells us, and who have seriously attempted to understand these things in their causes and consequences; cannot lightly accept the glib explanation sometimes offered by the superficially trained—including some professed economists who have specialized in public finance—that a given policy, whether of taxation or otherwise, was adopted or abandoned because it was seen to be "fair" or "unjust" or because it "didn't work." The competent student of

history will realize that the influence of interested persons and classes and the ignorance and consequent indifference, or even the ignorance and consequent active prejudice of the masses, frequently cause policies to be adopted when they are inimical to, and to be abandoned when they promote, the general welfare. But although historical studies are a most desirable background for the student of economics, this book is not the place for them.

I desire to express, here, my appreciation to the University of Chicago Press for permission to use in this book, substantially without change, a number of articles first published in the *Journal of Political Economy*. (The Shifting of Taxes on Sales of Land and of Capital Goods and on Loans, October, 1921; The Incidence of Compulsory Insurance of Workmen, February, 1922; Is a Tax on Site Values Never Shifted? June, 1924.) They appear now as Chapters V and IX and as the latter and larger part of section 2 in Chapter III, respectively. To Lucas Brothers Publishing Company (successors of the Missouri Book Company) I desire to express my appreciation for permission to use a couple of lengthy passages from my book entitled *Economic Science and the Common Welfare*, published by them, and a passage from my book, also published by them, on *The Taxation of Unearned Incomes*. To my colleague, Professor James Harvey

Rogers, I am under obligation for general criticism. To certain of the chapters he has given especial critical attention. But this does not mean that he is in any sense responsible for any logical fallacies into which I may carelessly have fallen. To my wife I am under obligation for several times going over both the manuscript and the proof. I would like to record here, also, without naming them, my obligation to various of my students who, although nearly all undergraduates taking a course requiring attention to difficult and involved reasoning, have helped to keep alive my own enthusiasm for the work by their keen interest, or have stimulated my thinking and aided me in improving my presentation by their questions or, in some instances, have made suggestions of direct and positive value.

H. G. B.

Columbia, Missouri, 1924.



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# THE ECONOMICS OF TAXATION



## INTRODUCTION

### THE SIGNIFICANCE OF TAXATION IN PUBLIC FINANCE

The subject of public finance, as commonly studied, includes a variety of topics. Chief among these are public expenditures, the means of raising public revenues and the relation between expenditures and revenues. In connection with public expenditures there comes up the whole theory of the proper functions of the state. Should the state do more than maintain an army and navy, a police force, prisons and courts of law? Should it build roads and bridges? Should it expend money for the free education of children? Should it maintain hospitals, and homes for the defective? Should it endow research? Should it encourage scientific agriculture by the issue of bulletins and otherwise? Should it encourage foreign trade by means of a consular service and a department of commerce, publishing bulletins on foreign markets, etc.? Should it encourage a merchant marine by subsidies or otherwise? These and many other like questions are certainly of great importance. But the subject of the proper scope of and limit to state functions is entitled

to a much more complete and judicious consideration than it often gets in books on public finance or than it would be likely now to get in a few introductory chapters of a book on taxation. All of the activities above-mentioned are engaged in by some governments; some of them are engaged in by nearly all governments. Nevertheless the considerations by means of which a decision as to the justification of such state activities would have to be arrived at are numerous and intricate; any view which might be herein espoused could hardly be defended with the definiteness and convincingness with which it can be shown that (for example) a tax on soft drinks will raise their price to consumers; and the author is disinclined to pronounce judgments which may appear to be merely an echo of current popular views and practice.

The problem of the proper functions of government looks still more complicated when there is noted the contention of many persons that government ought to undertake the provision, at cost, or for a nominal return above cost, of various services in addition to those supplied gratis. Whether cities should own and operate their own water plants, their own electric-lighting systems and their own street railways, and whether the central government of a country should own and operate the post-office system, the telegraphs and the railroads, are certainly important questions. And they



pertain to the general subject of state functions. Not only, however, are they too broad for satisfactory discussion in such a book as this, but, also, the settlement of them either way would not necessarily affect in any important degree the amount of money which must be raised by taxation.

The relation of the revenues to the expenditures of a state or government has very great practical importance. It is recurrently a matter for consideration by legislative bodies. For, on the one hand, no program of governmental expenditure can be undertaken without a plan for raising the necessary incident revenue. And, on the other hand, no plans for raising revenue should ordinarily be entered into without due consideration of the expenditures which have to be or which ought to be met.

Indeed, more than this may be said. For if we believe that the functions which government is to perform gratis should be many, if we believe that these functions are important, and if we are convinced that they should be carried out on an extended scale, then we shall be moved to support high taxation as a necessary means to our desired end. And we may be moved to support such taxation even if the community is poor and the taxation in question hard to bear. Yet, on the other hand, our estimates of the importance of governmental services cannot but be relative. A serv-

ice which is important enough to justify the incident necessary taxation in the case of a rich community may not be important enough to justify the necessary taxation in the case of a poor community.

Taxation is a diversion of income or wealth from individuals to the state. It means that individuals can spend under their own direction less of the returns from economic activity and that more of these returns is spent for them by the state. The things which the state does for all of us collectively are, many of them, things which are well worth doing, and some of them, such as maintaining order, may be essential. But the things that we do for ourselves, individually, are perhaps, taken by and large, no less worth while and no less essential. If poverty compels most of us to go without goods and services which we would like to have, the economies will, almost certainly, not all be in those services that we provide for ourselves but will be, partly, in services that are provided by government and which we pay for through taxation. Our compulsory self-denial will not take the form, entirely, of poor and insufficient food and clothing, unsanitary and inadequate living quarters, deprivation of leisure, and so on. In part it will take the form of a smaller and less well equipped army and navy, a smaller and less efficient police force, fewer and less adequately trained teachers for public schools, poorer roads and

streets, fewer and cheaper public buildings, and other public economies.

The subject of revenues and expenditures and their relation to each other comes before the legislative body of a state or nation periodically in the form of the budget. Here, again, much might be said did space and inclination permit. In some works on public finance the discussion of the budget extends over a number of chapters. And there are not wanting entire books dealing with the subject or even with a few phases or a single phase of it. The problems of the budget are now, perhaps, more studied by political scientists than by economists. They are problems having to do particularly with the methods of legislation and with the relations between the legislature and the executive, in the preparation and passage of the budget. Efficiency may be served by the so-called executive budget. Bargaining in the legislature, between the spokesmen of different interests and the representatives of different districts, in regard to the expenditure of funds, may be reduced to a minimum if the legislature is not allowed to add new items or to add funds to the budget as proposed and presented by the executive, but only to reject in whole or in part the executive's proposals. The bargaining in question may often, if not prevented, have serious economic consequences. Yet its existence is a political problem.

And although we are here in a field where political and economic forces are inextricably intermingled, nevertheless the author feels justified in not discussing the problem further.

For the purpose of this book is the study of problems of taxation, as such. And these problems, or even a part of them, are sufficiently important to justify the exclusion, in the main, of other matter, and to justify even more of space and attention than the author is prepared to give.

The subject matter of this book is to be taxation, but what sort of facts or theories about taxation do we desire to discover or to elaborate? And what policy or policies of taxation do we expect to advocate? As a matter of fact we shall present no special program of taxation nor shall we advocate any special kind of tax. To do so might arouse the partisan or class bias of some readers and make them less ready to assent to the fairly demonstrable principles upon which advocacy of such a tax program or kind of tax might seem to be based. For it is unfortunately true that not only the public generally but, even, oftentimes, trained economists, are unable to enter into the consideration of an economic problem of cause and effect—when it appears that the conclusions have a definite bearing upon a question of public policy—with the single-hearted desire to discover the truth, which

marks, ordinarily, the investigator in physics or chemistry. The author cannot, of course, deny the fact that such generalizations as may be arrived at as a result of the succeeding study, may have a bearing upon problems of public policy. Nor is it desired to deny this. And it cannot be denied that the principal reason for studying economics at all, is to arrive at economic laws the knowledge of which may help us in determining lines of wise policy. But it is the author's desire, in this book, to keep problems of policy in the background, and to devote attention to the discovery and explanation of economic laws as such, leaving it to readers to make such application of the conclusions reached as may seem to them proper.

Let us illustrate. Much of the space of this book is to be devoted to a discussion of the economic laws of the shifting and incidence of taxation. And the conclusions of such a study should have a significant bearing on the question of what is desirable in tax policy. Certainly we cannot intelligently decide whether a given tax may or may not be wisely levied without knowing upon what persons or classes of persons the tax will ultimately fall. If, for instance, a tax which is levied, ostensibly, upon the manufacturers of an article, may fall, in the last analysis, upon the consumers of it; if, also, a tax levied, formally, upon the income of capital may fall in part, ultimately, upon the wages



of labor; and if neither the people in general nor their legislative representatives comprehend the laws of the shifting and incidence of taxation, then the taxation policy adopted will almost certainly have results that were never intended. Persons and classes that the public desires to have heavily taxed and believes ought to be so taxed may practically escape taxation; while other persons and classes whom it was not intended to tax appreciably will in fact be heavily burdened. The theory of shifting and incidence is thus a most important and necessary step to the solution of any tax problem. For whatever we finally decide to be our ideal of distribution of the tax burden, we cannot, without a knowledge of the principles of incidence, be certain that our actual legislation will come anywhere near conforming to it.

Nevertheless, two persons might come to perfect agreement on the laws of shifting and incidence and remain in disagreement as to what form of taxation should be adopted by a modern state. For although each should admit that certain taxes must, in the last analysis, rest on certain specified economic classes, the one person might desire to have those classes thus taxed and the other might not. It would take common ethical ideals to bring them together. And even if a common ethical goal were in view, e.g., the greatest general welfare, it might still be impossible to get an agreement

as to how such general welfare could be ultimately best secured or as to what it might consist in.

While the study of the shifting and incidence of taxation is, thus, of tremendous importance and will constitute the larger part of our task, there are other consequences of taxation than its possible shifting which need to be considered. The levy of a duty on imports may raise the price of these imports to consumers, but it may also cause the purchase of like goods produced at home, instead of the foreign-produced goods previously bought. And it may, further, cause a decrease in exports about equivalent to the decrease in imports. An account of the effects of a tax on imports, which should stop with an explanation of incidence and which should say nothing of the tremendous effects that the tax might produce on commerce, would certainly be an inadequate account. Again, a discussion of taxes on economic rent which stopped with an explanation of their incidence, and made no reference to their capitalization in a reduced selling value of the land and to the various possible consequences of these taxes on the distribution of incomes and on the distribution of land ownership, would be inadequate.

The effects which we are interested in investigating are, in the main, objective effects. We shall, of course, have constant occasion to inquire about the effects of various taxes, on men's minds. But this will not be, as

a rule, because of any interest in their mental states of themselves. It will be rather, ordinarily, because consideration of these subjective mental states helps us to explain how men will objectively act. If a tax on certain goods causes men to feel that they can make a better living producing other goods and so diminishes the supply of the goods taxed, the prices of the taxed goods will rise. To explain this rise we have to consider the mental processes of the producers. But we make inquiry into these mental processes only because of their interest as a means of explaining the ensuing objective phenomena. Our analysis is concerned with mental states in themselves only as it may relate to a comparison of utilities and disutilities from different taxes or tax systems, assuming the incidence and objective effects to be already determined.

We may say, then, that our study is directed to discovering what is the shifting and incidence and what are the effects of various taxes. Clearly we cannot investigate every variety of tax, although we hope to consider such types as will enable the thoughtful reader, or student, to master the principles involved and himself apply these principles to taxes not discussed. And, clearly, we cannot inquire into all the possible effects of any given tax. These effects, though of varying degrees of importance, are multitudinous. The stone thrown into the ocean makes ripples which, as they



diminish in height with the widening of the circles, may extend—could we but measure their infinitesimal magnitude—to shores thousands of miles away. And the light rays which their movement deflects from the courses these rays would otherwise follow, may pursue their new way through the stellar universe far past the remotest stars of which the telescope informs us. Similarly, the effects, could we consider all of them in their (possibly) increasing variety though (probably) diminishing intensity, of any given tax, may extend through the future to and beyond the time when human beings shall have ceased to tenant the earth. We cannot treat all these possible effects. We can merely point out a few general principles indicating, in a general way, the kind or kinds of effects to be expected from any given tax, tax system or tax change. In choosing what facts to present and what to omit in the infinite multiplicity of possible detail, we shall doubtless make mistakes. For this we offer no apology. Others who write in the future may have to fill in the gaps. The things which to-day are unimportant—or which seem unimportant to the author—may become relatively more important in the future, when the apparently more pressing tasks now awaiting effort are accomplished. To the future, then, many of these other tasks must be left.

CHAPTER I  
MONETARY INFLATION A SPECIES OF  
TAXATION

§ 1

*How Paper-Money Inflation Taxes Consumers*

Perhaps it may be well to begin our study of the incidence of taxation with a consideration of a financial policy which is not generally thought of as taxation at all, viz., the securing of funds, by government, through the issue of inconvertible paper money. Nevertheless such raising of funds is, in effect, taxation, and the fact that it is ought to be more emphasized.

So long as the issue of inconvertible paper money merely displaces an equivalent or nearly equivalent amount of metallic money, under the operation of Gresham's law, its issue may be no special burden on the people of the issuing country. The government buys goods and services with the paper money. Thus this money gets into circulation. In doing so it tends to bid up prices. Such higher prices encourage buying abroad where prices have not thus risen. The result is increased monetary obligations to foreign

countries and a flow of gold to them. Thus, instead of a great rise of prices in the paper-money-issuing country alone, there is a smaller rise of prices affecting many or all countries. The paper-money-issuing country has given up gold to these other countries and has secured, in its stead, goods of various kinds. But the loss of the gold is made good by the paper money which takes over the money function. In spending this money when first printed, the government has got from the citizens various goods and services; but in sending abroad for goods and services a substantially equivalent value of gold, the citizens have largely recouped their losses. Although the people of the country have now only paper money in place of the gold, they are not, on that account, necessarily any the worse off, since with the paper money they will presumably be able to carry on business as effectively as if the money were gold. For in order that anything should circulate as money and have value in the purchase of goods, it is only necessary that each <sup>1</sup> person shall have confidence that, if he accepts such money from others in selling goods or services, he can, in his turn, get others to accept it from him; and that the quantity of such money shall be limited. Experience seems to show that, when an established government issues inconvertible paper money which it makes legal

<sup>1</sup> Most persons,—not necessarily *every* individual.

tender, such money actually does pass from hand to hand in the exchange of goods and services and performs the ordinary functions of money; and that the value of such money declines greatly only if it is over-issued in quantity.

But if there may be a question whether a government is really taxing its citizens when it issues not more than enough inconvertible paper money to push out of circulation a metallic money of bullion value equal to its monetary value, there is no possible doubt that it is taxing its citizens if it continues to issue the paper money beyond that point. Thus, to illustrate, suppose that there is, in the United States, \$4,000,000,000 in inconvertible paper money and that all metallic money has been driven out of circulation through the operation of Gresham's law. Suppose that then the government issues another \$4,000,000,000 of paper money. This new issue clearly cannot make the country as a whole any richer. It cannot facilitate the importation of goods from abroad because foreigners will not accept the money<sup>1</sup> and because there is no longer any gold money in circulation which can be displaced by the use of paper and so sent abroad for goods. The only effect the paper money can have

<sup>1</sup> This statement may be somewhat qualified. People outside of Germany have accepted depreciated German marks—have, in some cases, made it a point to invest in them—as a speculation, hoping that they would rise in value.

is to raise prices. As there is twice as much money to spend, approximately twice as much of goods and services would be demanded at the previously prevailing prices. But no such increased volume of goods can be produced. Demand for goods must, therefore, exceed supply unless and until prices approximately double. And this is what prices will tend, rapidly, to do.<sup>1</sup>

When prices have doubled, the people of the country will be getting money incomes roughly twice as large as before and paying prices for goods approximately twice as high as before. In this there is obviously no advantage. But, on the other hand, in this fact there is no loss. Yet if such paper money issue by government is a kind of taxation the citizens of the country must lose somehow as much as the government gets. Where and how is this loss suffered?

For the government to issue \$4,000,000,000 of paper money when there is already \$4,000,000,000 of such money in circulation and no gold or other metallic money capable of being displaced, and for the government so to buy approximately \$4,000,000,000 worth of goods, is for the government to compete against citizens for the purchase of goods. Thus, if

<sup>1</sup> Recent experiences in Germany and Austria have shown that, under rapid inflation, prices rise more than in proportion to the increase in monetary circulation. Velocity of circulation of money is increased.

we suppose the velocity of circulation of money (the average number of times a dollar changes hands during a year in payment for goods) to be 26, then, with \$4,000,000,000 in circulation, about \$4,000,000,000 would be spent in two weeks. But if, during such two weeks, the government puts into circulation another \$1,000,000,000, which it has had printed for the purpose, and so purchases supplies and services, it to that extent outbids the citizens who are trying to buy these things for themselves; and these citizens, as individuals, can purchase, with the \$4,000,000,000 spent by them, only some four-fifths as many goods as it would otherwise be possible for them to buy.<sup>1</sup> The government takes the other one-fifth. Thus, the government practically gets, in effect, a fifth of the output of industry during such a period. And this is abstracted from the people. Hence, the citizens may properly be regarded as being, to that extent, taxed for government needs. The extra \$1,000,000,000 spent because of the new issue, bids up prices. The government *bids against* the citizens for goods. De-

<sup>1</sup> We are here supposing, for simplicity, that none of the new \$1,000,000,000 put into circulation by government is spent a second time before the expiration of the two weeks; also the assumption is made that the velocity of circulation of money has remained unchanged with the increase in inflation. This latter assumption violates the recent experiences in many countries of Central Europe, where under rapidly increasing inflation the velocity of circulation has increased greatly and prices have risen much more than in proportion to the increase in the monetary medium.



mand for goods, at prevailing prices, exceeds supply. Prices therefore rise to such a point that the \$4,000,000,000 spent by the people individually buys less than before and the government gets the reduced purchasing value of \$1,000,000,000.

When the government has spent its \$1,000,000,000 of new money, it can tax the people no more in this way without a further issue. There is now \$5,000,000,000 in circulation instead of \$4,000,000,000. Prices of goods and services are, on the average, according to our assumption, twenty-five per cent. higher than before. Money incomes are larger but it costs more to live. Some will be better off, but, on the average, the people of the country are neither better off nor worse off than before *except for the wealth and services abstracted from them by the government when the new money was first put into circulation*. But if the government, during the next two weeks, puts into circulation *another* \$1,000,000,000, and then another, and another, it thus continues to tax citizens through outbidding them for goods in addition to setting in motion a whole series of expropriating influences which derive their force from the rapidity rather than the extent of the inflation.

In order, however, that the government may tax citizens an equal amount with each new issue, these issues must become progressively larger as prices be-

come progressively higher. Thus, after \$8,000,000,000 is in circulation, a new issue of \$2,000,000,000 is necessary if the government would take even approximately a fifth of the industrial output of the next spending period (assumed to be two weeks), as \$1,000,000,000 new issue was necessary when only \$4,000,000,000 was in circulation. And so a government which long attempts to finance itself in any such way causes prices to rise in geometric ratio until finally, perhaps, the money becomes worth no more than the paper on which it is printed. If, however, the money issued continues to be used, even the difficulty that the value of the money tends to approach that of the paper it is made of is not insurmountable. For the government can print, as exemplified in Central Europe, ever larger denominations—instead of increasing the number of original denominations—and so, in effect, introduce successively new official standards. The time when the money is completely discredited may be long in coming, as we see from the case of post-war Germany where money has increased and prices have risen rapidly year after year, yet where the inconvertible paper money—they have no other in circulation<sup>1</sup>—continues to be used, the limit, if any, to the process seeming to lie in its rapidity rather than in its extent.

<sup>1</sup> Stabilized since the above was written.



## § 2

*The Unequal Effects of Inflation on the Welfare of Different Economic Classes*

If, with paper money inflation, all prices should rise equally and with equal swiftness, the burden of the inflation tax would be distributed over the public in proportion to purchases. Paper money issue as a means of financing government would then resemble, in respect of its ultimate incidence, taxation of commodities in general or a general sales tax as being a burden on consumers as such.<sup>1</sup>

However, in practice prices do not ordinarily rise with equal rapidity or in equal degree<sup>2</sup> and, therefore, the burden is not distributed in proportion to consumption or to purchases-in-general. Upon some classes the burden falls with crushing weight while other classes may gain, at the expense of the classes who lose, more than the gaining classes contribute to the government. All the classes with fixed money incomes lose at such a time: the recipients of salaries, which are apt to change but slowly; the recipients of rentals which have been determined in advance by contracts applying over a period of years; the recipi-

<sup>1</sup> Cf. Chapter III, § 4.

<sup>2</sup> Cf. Fisher, *The Purchasing Power of Money*, revised edition, New York (Macmillan), 1911, Chapter IX.

ents of interest on bonds, which continue to pay the same number of dollars, francs, marks or kronen a year however much these standards of value may depreciate.

But, on the other hand, other classes may actually gain. Thus the borrowing business enterpriser finds that, with prices rising, he gains at the expense of lenders and, perhaps, of recipients of salaries. He borrows (say) \$50,000 to build a factory, pledging an interest payment of \$2,500 a year. At first, his direct outlays for current production come to \$60,000 per year and the salable value of his output is \$70,000. He pays his interest of \$2,500, sets aside \$1,500 for a sinking fund, and \$2,000 for depreciation and has \$4,000 left for himself. But suppose prices in general to double! Then his outlays for production become \$120,000 and the salable value of his output \$140,000. But his interest is, by contract, still only \$2,500. Also, his debt is still only \$50,000 despite the fact that each dollar is worth only half what it was before. On this account he does not need to increase at all the annual contribution of \$1,500 to his sinking fund. Doubling his allowance for depreciation—a new plant would now cost twice as much—he still has left for himself \$12,000. With prices doubled, he needs \$8,000 a year to be as well off as he was before with \$4,000, but he has \$4,000 *in excess*

of this. The lender, however, is still receiving \$2,500 interest though now he should be receiving \$5,000 to be as well off as before; and also, on the same basis, the debt should now be reckoned as \$100,000 instead of \$50,000, so that it would take \$3,000 instead of \$1,500 a year to provide the sinking fund necessary to pay it. In other words, the \$4,000 net gain a year of the borrower is balanced by a \$4,000 net loss a year of the lender.

During a process of inflation financing, the government, as we have seen, is continually outbidding the public for goods, so that prices rise faster than, on the average, individual incomes increase. Part of the net \$4,000 gain of the borrower of our illustration may thus be abstracted from him by a further rise of prices consequent on the bidding for goods by government through a new paper money issue. It is conceivable, indeed, that further issues might come so fast and prices rise so rapidly as to leave him worse off with \$12,000 than he was previously with \$8,000. But such further issues and further rise of prices would add more to the injury of lenders. It follows, then, that this method of taxation—for we have seen that inflation is really taxation—is a method by which the lending class not only pays taxes to government but also, in addition, loses to the borrowing class; while at the same time it is a method by which the borrow-

ing class may gain at the expense of lenders far more than it contributes to government.

These inequalities from inflation are, of course, a consequence partly of men's failure to realize that the value of the monetary standard may vary, and they are due partly to men's inability to foresee in what direction and how great the variation will be. Could the lender both realize the significance of a declining value of the monetary unit and foresee such a declining value, he would refuse to lend except at a very high rate of interest measured in such depreciating money. But during long periods of comparatively stable prices, the habit of counting on this stability and making long-term contracts in expectation of it becomes all but universal.

If government finance through paper money inflation is, as we have shown, in effect taxation, and if it is taxation of so unequal a kind as actually to benefit some classes (or tax them only a little) while perhaps taking from other classes more than it yields to government, why is paper money inflation ever adopted for the finance of war or any other emergency? Such a question may well be asked by one who expects to see governments act intelligently and for the general interest. It is unlikely to be asked by those whose knowledge of human nature and whose study, in history, of the past actions of men, have taught them in

how slight degree men understand the nature of the economic forces to which they are subjected and how much they are swayed by prejudice, and, what is most pertinent from the standpoint of a government, how much more important it is for political reasons, to avoid unpopular taxes than to impose just ones. Since the goods and services secured by government through competitive spending of new paper money issues are, in effect, obtained by taxation which may actually profit some citizens as well as the government, it is reasonable to suppose that as much or more wealth and services could be obtained by more equitably adjusted taxation. If existing taxes are not high enough to secure the needed revenue, then they can be raised higher as an alternative to money inflation. But a government may fear to lose popular support if it definitely thus increases the tax rate, since such an increase can be clearly seen and will be understood by citizens to be an increase; while the putting into circulation of inconvertible paper money taxes them insidiously without their being, as a rule, for some time aware what is the cause of their new poverty. The rise of prices will be attributed to scarcity of goods, to demands of organized labor, to "profiteers," to "war demands," etc., and few will realize until the inflation has become very great, if they ever do, what is the real cause of the rising prices. Indeed it is

more than probable that many of the legislators themselves who are instrumental in initiating the inflation will not realize. For men who are chosen as representatives of the voters to make the statute laws of a country, though they are often plausible in manner and effective in speech making, frequently understand the laws of our economic life no better than they understand differential calculus or physiological chemistry. Being themselves ignorant of the complex forces of economics they the more readily accept current fallacies and even themselves initiate such fallacies by way of attempted explanation of the rising prices. According to the influential sentiment of their constituents and their own bent—whether “radical” or “conservative”—they may attribute the evils for which their own action is responsible to the “profiteering” of captains of industry or to the “exactions” of organized laborers *et al.*

### § 3

#### *Summary*

In this chapter the attempt has been made to analyze paper money issue as a means of government finance. So far as the issue of paper money operates to push out gold or other metallic money into foreign countries, the people of the issuing country suffer no



loss in their current consumption of goods. But further issue of inconvertible paper money bids up prices and consumers are, in effect, taxed since government bids against them and their money will buy fewer goods. If prices of all sorts rose in equal proportion the burden of government's buying would be distributed over all consumers according to their expenditures. But, in fact, salaries, interest on bonds, etc., are relatively unadjustable to new conditions. Hence rise of prices consequent on monetary inflation distributes the burden of government financing most unevenly over various classes of citizens.

CHAPTER II  
GOVERNMENT BORROWING AND ITS  
ULTIMATE INCIDENCE

§ 1

*The Nature of Government Borrowing*

Government borrowing is a recognized and a not uncommon means of government finance. But it is a means of finance the inner nature of which is generally misunderstood. The probable reason for its being misunderstood is that a nation's borrowing is thought of as analogous to an individual's borrowing. An individual who borrows money borrows from another individual. And the borrowing of a nation *may be* like this, for a nation may borrow of another nation. During the recent World War, allied nations did so borrow of the United States. But, in general, a nation borrows *within itself*, i.e., the nation's government borrows of its own citizens. Hence, so far as the nation is concerned, there is no increase of assets or spending power. There is merely a transfer from individuals to the government, from some of the people



in their individual capacity to all of the people in their collective capacity.

Let us examine this proposition more carefully. Suppose, for example, that the United States government borrows \$500,000,000 from its own people. Just what does such borrowing involve? In the simplest case, where there is no least element of inflation, it involves a transfer, from citizens to government, of \$500,000,000 of purchasing power. Five hundred million dollars in money or bank checking accounts, which would have been in the possession of citizens for the purchase of such material goods or services as they might desire, are instead put into the possession of the government which thus gets the purchasing power that the citizens relinquish. Then these citizens, as individuals, can buy \$500,000,000 less of goods; but the government can buy \$500,000,000 more. There need be neither less goods produced nor more goods; there need be neither less labor employed nor more labor; industrial activity need be neither discouraged nor encouraged: for the market, though in a different direction, is neither smaller nor greater than before. It is true that the government, with the money borrowed, may not buy the exact articles or services that the people as individuals would have bought. But the labor, land and capital which would have been devoted to making goods for the people as

individuals can instead be devoted to making goods required by the government.

## § 2

### *"Business as Usual" in War Time*

In the light of the above facts it should be easy to see the fallacy in the notion advocated by some business men and others, in 1917, that we should have, despite our participation in the war, "business as usual." What many of them clearly had in mind when using the phrase and what numbers of them endeavored to bring about by their advertising was *expenditure as usual*. Thus, a firm might be manufacturing pleasure cars and trying to encourage the purchasing of these cars by the public "as usual." Yet if the public had the same money incomes as before and spent as much as usual on all the things for which they had been spending, then they could turn no money over to the government for its expenditure.<sup>1</sup> In the long run and on the (rough) average, prices and wages tend to be just low enough so that the total expenditures of the public purchase the

<sup>1</sup> The points made in this section are not new. They are made clear by the discussion of various economists during the Great War, among whom were Professors Davenport, Sprague, and Carver. A good discussion of the problem is to be found in Carver's *War Thrift*, New York (Carnegie Endowment for In-

current output of goods and keep currently employed the available supply of labor. If the people as individuals continue to spend the usual amounts, if no new money or bank credit is put into circulation, and if prices do not change, their spending will continue to suffice to purchase current output and to employ available labor. There will be no appreciable additional supply of goods and no appreciable surplus labor to satisfy the war needs—or any emergency needs—of government.

If we discuss the problem in general terms, without especial reference to the use of media of exchange, we shall reach a similar conclusion. In periods of ordinary prosperity the current purchases of the public absorb all the current production and keep practically all would-be laborers busy. It is not to be claimed that current *consumption* necessarily equals current *production*. There may be saving and consequent increase of durable capital. Indeed, capital is never brought into existence *except as* time is spent in the production of things that are *not* currently consumed. The construction of a railroad, the building of a factory, the erection of a bridge, all involve put-

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ternational Peace—Oxford University Press), 1919, Chapter III. See, also, on this and other matters connected with war finance, an interesting article by F. F. Anderson on "Fundamental Factors in War Finance," in the *Journal of Political Economy* for November, 1917, pp. 857-887.

ting forth labor the fruits of which are realized only during a period of many years extending into a future far past the time when the work was done. When berries are eaten as they are picked, when all the products of the harvest are used up for food as quickly as they are gathered, and when, in general, no time is devoted to producing any goods except such as are immediately consumed, there is no increase of capital. But although, in a saving community, production normally more than keeps pace with consumption, production for sale does not normally exceed purchases. The community may be growing richer but it is not thereby producing more goods than its citizens want. And if these citizens, as individuals, retain or buy or both—if they in any way appropriate—all that is produced, then nothing is available for the state. Or, if the state has new and additional needs, and if the citizens as individuals do not curtail their purchases, then these new and additional needs cannot be provided for.

It should be, then, obvious that a country cannot get emergency means for carrying on a war unless there is increased production, increased saving, or diversion of saving from providing the equipment of peace to providing the means of war. If more labor is to be diverted to the manufacture of cannons, rifles and gunpowder and if no more total labor is to be

had, less labor must be devoted to making pleasure cars, jewelry, furniture and the like for private citizens.

But if the view above criticized is so hopelessly fallacious, why, it may be asked, was it so widely accepted? One answer would be: *self-interest*. The manufacturer of a luxury serving only the uses of peace, unless and until he realized that he could turn his plant to the production of things needed for war, feared loss of business if the public did not continue to spend money for personal gratifications in the same way as before.

There was, however, a certain plausibility about the argument for continuance of peace-time expenditure, which doubtless not only aided in convincing those whose apparent self-interest made them anxious to be convinced but also deceived many who had perhaps no special interest in the matter but whose economic training was not such as to make real analysis possible. For it was contended that, by spending money freely, the purchasers of goods made business prosperous *and so enabled the war to be paid from such prosperity*.

Let us suppose the case of a man who, in 1917, contemplates buying an automobile at a price of \$2,000. He might, instead, lend the government the \$2,000, i.e., he might buy a Liberty bond, and with

the \$2,000 the government might buy war equipment. But it is argued that, if the automobile is not bought, the company selling the automobile would not make the "profit" of (say) \$300, which might, it is alleged, be lent in part to the government and so "help win the war." Better spend \$2,000 for an automobile in order that \$200 of the "profit" of the manufacturer should be available to help finance the war rather than make the entire \$2,000 available at once to help finance the war!

But the above sentences imply that the net disadvantage of buying the automobile, so far as providing funds for war finance is concerned, is but \$1,800 (\$2,000—\$200), whereas (except for possible temporary difficulties of industrial readjustment) the net disadvantage is a full \$2,000. For if the citizen foregoes his car and lends the government the \$2,000 which he would have spent for it and if, therefore, the government buys \$2,000 worth of goods or services with the money, the manufacturer or producer of such goods or services is probably as likely to make a \$300 "profit" as would have been the manufacturer of the automobile. Therefore he is probably as likely to be able to lend the government \$200. In either case, then, the government has probably an equally good chance to get the \$200 from the \$300 "profit." In one case, however, it gets \$2,000 to begin with and



in the other case it fails to secure this \$2,000.

The above argument does not indicate, however, that, out of \$2,000 worth of saving, the government can get \$2,200 worth of goods. The original \$2,000 will presumably be paid for \$2,000 worth of goods. The possibility of getting another \$200 worth lies in the fact that one (or more) of the producers of the \$2,000 is willing to (in effect) give \$200 worth of services or goods in excess of what he is immediately paid for, accepting instead of cash the government promise to pay, i.e., accepting government bonds. He may, indeed, receive money or checks but he turns back \$200 of it and takes the bonds. He is able to do this because he can live on less than his full income. He refrains from consuming all he might consume. In short, he saves. So there has been \$2,200 saved instead of merely \$2,000.<sup>1</sup>

While we are on this point regarding lending to

<sup>1</sup> Lest some critic accuse us of overlooking it, we point out that the lending of money to government, e.g., the buying of government bonds, may slightly diminish the velocity of circulation of money and bank credit, i.e., may diminish the amount spent for goods in any given period. The citizen might have spent his \$2,000 for goods but instead lends it to the government through the purchase of government bonds. If the government does not spend it as quickly after receiving it as it would have been spent by the citizen had he not lent it, then there is a diminished velocity of circulation with a consequent tendency, other things equal, towards very slightly lower prices. This tendency, however, is probably more than overbalanced by the greater velocity of circulation of government deposits.

government—or the buying of government bonds—attention may be called to another fallacy propounded in the early months of American participation in the World War. This was to the effect that there might be danger in depending too largely, for the financing of the war, upon taxation rather than bond issue because such taxation—so it was alleged—would decrease the available sources of capital for business and lessen the contributions to charity. In truth, of course, to depend on bond issues—if the sums required by government are actually secured in the desired amount—will *just as greatly* diminish the funds for other purposes as if government raises the money needed by taxation. Money which a citizen *lends* to government can no more be invested in business—*or* given to charity—than money which he pays in taxes to government.<sup>1</sup> Discouragement to business or to charitable contributions can only result if the tax method takes a larger proportion of the funds secured than does the bond-issue or borrowing method, from the particular persons who are inclined to business investments or to charity. The taxation method may possibly, in some cases, take a larger proportion from those who are charitably minded. It will hardly take

<sup>1</sup> The possibility of using the bonds bought, as security for a private loan, and the investing of the money so secured, in business, with the consequent credit inflation, will be considered in a later section (§ 5) of this chapter.



more, we suspect, from those who are minded to invest. The borrowing or bond-issue method would seem more likely to draw the funds of persons who are inclined to save and invest than of those who are inclined to spend as rapidly as they get. As between persons of equal wealth and income, at least, the taxation method would not seem likely to do so.

### § 3

#### *Can the Burden of Financing a War be Imposed on Posterity?*

The preceding discussion may serve somewhat to prepare the reader for an examination of the contention that the financing of a war or other emergency by borrowing, rather than by taxation, puts the burden—or part of it—upon posterity. In examining this contention we shall assume two cases: one, when the borrowing is done outside the borrowing country; two, when the borrowing is done inside the borrowing country. In the first case, no denial can be made of the accuracy of the contention, so far as the people of the borrowing country are concerned. Thus, certain of the allied countries borrowed, during the recent war, of the United States. This enabled these countries to have, for the time being, additional supplies of munitions, food, etc., for which their own people

did not have to pay. But if, eventually, the loans are repaid, then the people of these countries must bear a burden in excess of their current governmental expenses. And if this repayment, though made, is considerably deferred, a burden rests upon another generation, in these allied countries, than those who fought the war. Whether the gains from the war—or the losses prevented by it—are such that they can afford so to pay, or whether they are likely to have new wars of their own and to be overwhelmed with burdens and obligations new and old, we shall not inquire. We need only note that, under the assumed circumstances, it is undoubtedly possible for the people of a country to impose a burden upon their descendants.

Consider, now, the other case, when the borrowing nation (or nations) borrows only from its own people. This case was substantially realized during the World War by the borrowing of the United States. In this case the contention that the burden of an emergency expense can, by borrowing, be thrown upon posterity, must be declared to be altogether false. Thus, to illustrate, we shall suppose the sum borrowed by the United States from its people, exclusive of sums borrowed to loan the Allies, to have been, in round numbers, \$10,000,000,000. This loan was made by citizens of the war generation, who, in

making it, presumably had to curtail their expenditures in other directions but who received government bonds as a pledge of repayment. The question is whether they are ever repaid. It can be shown that they are not except if, as a group, they *repay themselves*.<sup>1</sup> For if there is no repayment until a new generation has reached maturity, then, obviously, the lending generation never gets repaid since, when repayment is made, many of the lending generation are dead. While if repayment is made soon, then members of the lending generation are themselves the bearers of the taxes.

Let us discuss the problem in the light of an hypothetical concrete case. Smith, living during the World War, buys, we will suppose, \$1,000 worth of Liberty bonds in 1918. Suppose repayment to be made in 1928, Smith being still alive, and suppose that Smith's purchase of bonds was substantially in the same proportion to the purchases of others as are his tax obligations to the tax obligations of others. Then when it comes time to pay Smith back the \$1,000 of money which he lent, he must contribute \$1,000 in taxes to provide the means for such repayment.

<sup>1</sup> See, for example, Sprague, "Loans and Taxes in War Finance," *The American Economic Review*, Supplement, March, 1917, pp. 199-213, especially p. 206, and Davenport, "The War-Tax Paradox," *The American Economic Review*, March, 1919, pp. 34-46, especially pp. 37-39.

Or, if the loan is paid back from the proceeds of an amortization fund gradually accumulated, then he has had to contribute to this fund. In fact, therefore, he never gets back the \$1,000 although in probably ninety-nine cases out of a hundred he does not realize this. So far as Smith is concerned, conditions would have been the same had he been asked to pay the \$1,000 as a tax in the first place. For though he ostensibly merely loans it, he is equally deprived of the privilege of spending it for himself; the annual (or semi-annual) interest received is matched by annual payments of tax and the final repayment of principal is, as we have seen, likewise, in effect, a mere taking of money out of one pocket and putting it into another.

In practice, of course, the taxes paid by different persons to provide means for redeeming the bonds issued, have no necessary relationship to the value of the bonds bought by these persons. A person who bought few bonds may, if he has, when repayment is made, large taxable income, pay much toward the redemption of the bonds bought by others; and a person who bought many bonds may, if he has, at the time of repayment, only a small taxable income, pay little.

Hence, although it can be truly said that the people as a whole have lost as effectually as if the money

had been raised by taxation and, when they are paid back, really have to do the paying themselves, this cannot be said of each individual among them. And so, the person whose patriotism or sense of duty inclines him to lend money to his government during a war, need not fear that he will have to contribute more towards paying it back than if the lending were done by others. If he does the lending, his later taxes will be largely devoted to paying himself back. But if he does *not* do the lending, his later taxes will be devoted to paying others back. As an individual, then, he may fairly consider that lending does not cost him more than not lending. But the whole people, considered collectively, might as well contribute frankly by taxation as to camouflage the situation through government bond issues.

✓ We shall next suppose, however, that the period of repayment of the bonds is deferred, so that the repaying is done by a later generation. In that case it should be equally clear that the original lenders of the funds are never really reimbursed and it should be clear that the later generation, considered as a whole, is not burdened. Certainly there is no way by which a later generation can reimburse a generation which has passed away. Smith has loaned his \$1,000 to the government. He has received only the annual interest paid for by taxes on his own generation,

perhaps on himself. Before the principal is due, he dies. The government bond is inherited by his son. Thus, when redemption is undertaken, and taxes are levied on the new generation to consummate it, the funds so raised are paid *to* the new generation. Smith's son—along with his contemporaries—meets the taxes that are required to redeem his bond. If any of the older generation are still living, they will contribute to the repayment, probably in proportion as they received such repayment.<sup>1</sup> If none of them are living, the new generation will do all the paying but, also, it will do all the receiving.

#### § 4

#### *Are Government Bonds a Mortgage of the Māsses to the Classes?*

During the recent World War, persons of liberal and radical persuasion were, in large part, advocates of the scheme of having the funds necessary raised entirely or almost entirely by taxation rather than by bond issue. They reasoned that sharply progressive

<sup>1</sup> It is, of course, admitted that, with many of the older generation still living, a tax discriminating specifically against the newer generation would force them to contribute largely towards the repayment of the original lenders. Also, a non-discriminatory tax, in a country growing rapidly by immigration, would force the immigrants to contribute toward the redemption of bonds owned by the original inhabitants and their offspring.



income taxes could be levied on the well-to-do, taking for government purposes practically all their surplus above their reasonable requirements for current consumption, that the funds required by government would be more certainly obtained by taxation—a compulsory method—than by borrowing and, particularly, that to secure the funds by borrowing would mean heavier later taxation of the poor to provide repayment of the bonds. One thing is clear, viz., that if the needed funds are provided at once, by taxation, a large part or most of these funds will necessarily be provided from the incomes of the relatively wealthy. The poor have little to spare. It is not possible to squeeze much from them. A *taxation* system of money raising, therefore, if much is raised, and especially if nearly the maximum amount possible is raised, *must* involve very sharply progressive taxation. The funds so raised cannot, of course, be invested in the capital of private business but neither could like sums raised by borrowing be so invested.

If, however, the money needed is raised by borrowing, then it becomes possible to put more of the burden of the emergency financing on the poor. For although the poor have only a small surplus and cannot contribute much in taxes during the few years that an expensive war continues, nevertheless they can contribute something each year for an indefinite

future *after* such a war is over. This annual contribution can then be used to pay interest on the bonds owned by the wealthy and, if it is desired eventually to retire the bonds, can be used to repay the principal. Herein lies the meaning of the contention that war finance by bond issue means "a mortgage on the masses to the classes."<sup>1</sup>

Doubtless war finance by means of bond issues might mean a mortgage of the masses to the classes and perhaps, in large part, this is what the American Civil War bond issues did mean. Tariff duties, levied on articles of general consumption and falling largely on the masses were the means of securing a great part of the money needed for the redemption of these bonds. But financing by bond issues need not inevitably mean this. For the taxes later levied to pay back the bonds might be made, as at the present time for example, progressive and sharply graduated, or they might be levied only on large incomes or large property, or only on specific kinds of property or specific kinds of expenditure, or could be otherwise so adjusted as not to fall upon the masses.

That some of the above kinds of taxes might indirectly fall upon the masses by discouraging accumulation and raising the rate of interest is not here de-

<sup>1</sup> Cf. Davenport, article above cited on "The War-Tax Paradox," especially pp. 39-41.



nied. This may or may not be the case. The shifting, incidence and effects of various taxes are discussed at length in succeeding chapters. But, at least, the taxes above suggested do not in the first instance so fall.

The suggestion of a "capital levy" to pay off the war debts, which has been advocated in Great Britain and elsewhere, is perhaps largely motivated by the desire to make the wealthy pay off these debts. By a capital levy is meant a tax on the owners of property too heavy to be paid out of annual income. To pay such a tax property owners would have to sell a part of their holdings. The part sold would presumably be purchased, in the main, by the owners of bonds whose bonds were being redeemed. In general, the property-owning classes have been antagonistic to the scheme. Yet if the bonds were to be redeemed, eventually, by heavy taxes on the income from their property, the question might plausibly be raised whether they might not as well relinquish some of this property at once and thereafter avoid taxation on the rest (except to meet costs of current governmental services). But if repayment of the bonds is to take place gradually over a period of years, there is considerable probability that at least a part of the necessary funds will be raised by taxes falling upon others than the owners of property.

Whether or not a progressive tax on incomes might in some degree be shifted, ordinarily, upon the poor by discouraging capital accumulation and raising the rate of interest, the fear of such a result should perhaps not operate as an obstacle to such taxation during a war. For in war time, at least in such a time as that of the recent World War, little or nothing can be spared for the increase—if, even, for the upkeep—of capital not needed for war purposes. And whether people pay heavy taxes to government or lend “until it hurts,” makes no difference either in how the funds secured are used or in how much private-business capital citizens can accumulate during the emergency.

## § 5

### *Borrowing and Inflation*

There is, however, another possible consequence of the borrowing method of war finance, to which we have not so far adverted. This is credit inflation with ensuing rise of prices. It will be worth while to explain at some length why and how government borrowing in war times brings about such inflation.

Thus far, in our discussion of government borrowing, we have assumed that the citizen lender, by lending, necessarily diminished his own spending power

by whatever amount he increased the spending power of the government. Thus, if Smith paid \$1,000 for a Liberty bond and so gave the government \$1,000 additional to spend for materials of war, his own purchases of goods (other than the bond in question) must be reduced by \$1,000.

Taking the country as a whole and assuming that those in charge of the banking system steadfastly refuse to let bank reserves become any smaller than these reserves would become if the government were not borrowing, then government borrowing would not cause or contribute to inflation. If, under these circumstances, the banks made loans to government, they would have to make fewer or smaller loans to business men. And if they made additional loans to the purchasers of government bonds, on the bonds as security, then they would necessarily make fewer or smaller loans to others. It is, therefore, conceivable that a nation should engage in a great war, meeting the expenses of the war by borrowing from (selling bonds to) its own citizens, and yet avoid inflation and rising prices. But it would be difficult and, probably, impossible to find any instance of such a policy in the modern, bank-credit-using world.

Unfortunately, when once the policy of financing through bond issues is definitely entered upon, there is almost certain to be popular or political pressure

on the banks in the direction of larger bank loans. The customary reserve requirements of peace time are disregarded and reserves are allowed to become a much smaller per cent. of deposits—deposits-subject-to-check a much larger multiple of reserves—than would otherwise be the case. Thus the ratio of reserves to deposits of the Federal Reserve banks in the United States declined rapidly during the World War and for about a year thereafter while the government was still in the throes of war financing. The Federal Reserve Board seems to have refrained from restricting credit, for some time after the armistice, with the idea that by thus keeping credit “easy” it would facilitate borrowing by government at low rates.

If inflation is decided upon or allowed to take place, the citizen can, ostensibly, lend to the government without proportionately curtailing his own private expenditure. Thus Smith, in our illustration, can purchase a \$1,000 bond (lend \$1,000 to the government) without curtailing his expenditure for consumable or capital goods by an equal sum, *if he can use the \$1,000 bond as collateral for a loan from his bank*. Perhaps he may borrow \$900 on this bond as security. Then in buying the bond (lending \$1,000 to the government), he has to curtail his other expenditures by only \$100. Instead of giving the government \$1,000 more to spend and himself refraining from this expenditure,

he gives the government \$1,000 to spend and also (in effect) spends \$900 of it himself. The total expenditures of both the government and Smith, resulting from the loan, come to \$1,900 instead of \$1,000. The inevitable result is rise of prices. The citizen formally lends the government \$1,000 to spend and then goes into the market with \$900 more with which he bids against the same government for goods, raw material, or labor. Therefore the \$1,000 borrowed by the government does not go so far in purchases as it might and the number of dollars borrowed must be greater.

Except that the inflation is a more direct or immediate consequence of the loan, the situation is similar when the banks themselves buy government bonds, turning over to the government newly-made checking accounts or newly-issued bank notes. In this case the citizens as individuals do not at all curtail their purchases since their supply of money and checking accounts is not decreased, and government, in order to buy anything with this newly-made credit, has to outbid them. Prices, therefore, rise, and more dollars must be borrowed than would otherwise be necessary.

The period of inflation may add to the prosperity of some classes, but it means a loss to all those classes whose incomes do not quickly respond to price changes, such as lenders and holders of securities yielding fixed

interest—including the holders of government bonds bought before the inflationary movement ends. And the succeeding deflation—if deflation in fact eventually follows—will not necessarily restore the balance among the different persons and classes affected, since some who suffered as lenders and as recipients of fixed incomes when prices were rising, may be in an entirely different situation—e.g., may be borrowers—when the rise ceases and prices begin to fall.

## § 6

### *Summary*

Government borrowing is a common resource for the meeting of emergencies, such as wars. If the borrowing is from foreigners, the burden of paying may be thrown in part or in whole upon a later generation of the people of the borrowing country. If, however, the borrowing is done at home, the burden to the people of the borrowing country, considering them as a whole, is a contemporaneous burden. Posterity cannot be made to repay since, if retirement of the debt is deferred until a new generation can pay, then this new generation, as taxpayers, pay themselves as bondholders.

The financing of a war through government borrowing has been declared to be a mortgaging of the



masses to the classes. To get the funds needed by current taxation would necessitate taxing the rich at a very much higher rate than the poor, because the poor cannot possibly spare—if they are to continue to live—a very large per cent. of their incomes in the war years. But to get the funds by borrowing makes it possible to put a larger burden on the poor through taxes levied on them or on the goods of their consumption over a period of many years, to pay back the rich. The poor can pay little during the war. They could pay considerable, in dribblets, over a period of years following the war. Nevertheless, though the borrowing or bond-issuing method of war finance makes it *possible* to impose a considerable burden, eventually, on the comparatively poor, it does not make it *necessary* to do so. The bonds can be redeemed, if it is so desired, with money raised by taxes levied only upon the rich.

When the citizen lends to his government for war purposes, he will in some cases curtail his expenditure for personal purposes by an equal monetary sum. If there were no inflation, private expenditures would have to be decreased by as much as public expenditures were increased. This need not interfere with active business. Business men must merely make what the government needs and is prepared to purchase *instead of* what private individuals want. If produc-



tive activity continues to be devoted to satisfying the wants of private individuals, the government cannot secure needed war material and military victory is apt to be jeopardized.

But war finance by bond-issues is likely to bring about inflation. Citizens buy bonds and then pledge the bonds as security for bank loans. Banks buy government bonds directly with their credit. In both ways bank credit tends to be inflated. This could be prevented by a drastic policy of rigidly maintaining bank reserves and restricting bank deposit and note credit—as to the desirability of which in other regards no opinion is here expressed—but, in practice, it is seldom or never prevented. Hence, prices rise, the amount of money which government must borrow is thereby increased, and some classes (e.g., borrowers) profit at the expense of other classes (e.g., lenders).

## CHAPTER III

### TAXES ON COMMODITIES COMPETITIVELY PRODUCED

#### § I

#### *Introductory*

Although governments have frequently attempted to secure needed goods and services by the issue of paper money—really, as we have seen, but concealed taxation—and although borrowing has been a not uncommon emergency resource, nevertheless the main long-run means of financing modern governments is taxation which is frankly acknowledged to be such. And among the various kinds of taxation to which governments have resorted and still resort, the taxation of commodities has been and is one of the most common. The much-criticized *gabelle* or salt tax of pre-revolutionary France was such a tax. Our own Federal tax upon manufacturers of tobacco, cigars and cigarettes is such a tax. The Federal tax upon spirituous liquors, prior to the adoption of the eighteenth amendment to the constitution, was such a tax. The tax upon moving picture entertainments, though levied on the

production of plays rather than on the production of material goods, is a tax of the same species.

Perhaps a principal reason for the widespread and long-continued use of commodity taxes is the fact that the general public who, as consumers, are ordinarily supposed by economists to pay such taxes in higher prices of goods purchased, are not acutely conscious of paying. Many of them may admit, in their reflective moments, that they do so pay such taxes. But even to these the contribution to government is so inextricably bound up with the purchase of goods to meet their own personal needs when these needs are the matter uppermost in thought, that the fact of there being a concomitant contribution to government is, often, scarcely at all attended to. And as for the remainder of the consuming public—they are bound up almost entirely in their personal gratification, in their attention to the latest baseball game of their favorite team, to the latest prize fight, motor race or other sport, or to whatever other current type of activity happens to take their fancy, so that, on such matters of common interest as taxation, they scarcely reflect at all.

A presentation of the theory of taxation will hardly suffice to bring intelligent legislation out of indifference and unconcern. And yet, if there is to be any

hope at all of a sane solution for our tax problems, there must be scientific inquiry into the principles of the subject and there must be an increasing proportion of the public who will comprehend and be influenced by the results of such inquiry.

The first problem to consider in connection with the taxation of commodities or with any other kind of taxation is the problem of shifting and incidence. As was pointed out in the Introduction, we cannot intelligently decide whether a given tax may or may not be wisely levied without knowing upon what persons or classes of persons it will probably ultimately fall. We must not, however, enter into our investigation of incidence with the idea that the solution of the problems of incidence can, by itself, bring us to a correct conclusion as to what taxes are good and what taxes are bad. Even though we may know beyond any reasonable doubt upon what classes each of several taxes will fall, we do not thereby necessarily know which tax among them is the best tax. In order to select intelligently among various taxes, we need to know not only upon what class or classes each such tax falls but also upon what class or classes we desire our taxes to fall or believe they ought to fall. But while the theory of incidence is only a part of the general theory of taxation, it is, clearly, an important

and, indeed, an essential part. For whatever we take as our ideal of distribution of the tax burden, whether we conclude that taxes should rest chiefly on unearned incomes, or chiefly on large incomes, or chiefly on consumers as such, we cannot, without a knowledge of the principles of incidence, be certain that our actual legislation comes anywhere near fulfilling our desires.

## § 2

### *Constant Cost or Elastic Supply*

The first kind of taxation with the incidence of which we shall concern ourselves is taxation of commodities which are competitively produced. By this is meant taxation of non-monopolistic producers or dealers in proportion to the output or sales of the commodities produced or dealt in. Such taxation, we shall see, does not rest entirely and may not rest at all upon the producers or sellers of the taxed commodities, but is shifted in part or altogether upon the consumers. Whether and to what extent a tax can be shifted depends upon whether and how far the tax affects the supply of the thing taxed and, also, upon the conditions of demand. In order, therefore, that our conclusions may be reasonably definite, we must analyze the conditions of supply and demand in so far as they are significant for our purposes.

From the point of view of exposition, at least, the simplest conditions of supply are those which obtain under what is called constant cost. A condition of constant cost is a condition of absolutely elastic supply. The cost of any article is measured by the alternative gains of the labor, capital and land necessary to produce it. If more of the necessary labor, capital and land can be secured as easily as less; if it is as easy to divert a ten thousandth unit of each factor into the given line of production as a tenth unit; if, therefore, more labor, capital and land can be secured as cheaply per unit as less,—then the cost of production of the article in question is, in so far, constant. Suppose this cost to be \$1 per unit of the article. Then the amount supplied at the price of \$1 per unit may be anything between (say) fifteen and five thousand units. The cost would not probably be constant beyond any assignable limit of amount, for sooner or later we should find some labor, capital and land so relatively well adapted to other lines that a return of \$1 per unit produced would not draw them into this line. But if we were to imagine constant cost going on indefinitely we might express the situation by saying that at a price per unit very slightly below \$1 none would be supplied and at a price very slightly above \$1 an indefinitely large amount of the article would be supplied. The amount of the article which



sellers would dispose of at \$1 per unit (the supply at that price) would be whatever amount buyers would take at \$1 per unit. The only price at which demand for and supply of the article could possibly balance would be a price of \$1 per unit.

It is probably true, as has been above indicated, that constant cost or absolutely elastic supply cannot be predicated of any commodity through an indefinite range. In other words, the cost per unit cannot be the same regardless of whether the amount of the goods required is ten thousand a week or ten billion a week. Nor will it ordinarily be possible, in case ten thousand would be supplied at a price of \$1 each, to get ten billion supplied at a price of \$1.0000000001. In order that the larger amount should be supplied, *some* labor or *some* land would have to be drawn into the business, which could not be diverted from other lines without the offer of a higher price. Nevertheless, *within limits*, supply may be *almost* absolutely elastic and cost *almost* absolutely constant. A barely perceptible rise of price might increase supply from a thousand to a hundred thousand units, for the cost per unit, between those limits, might be very nearly constant. The slightest enforced reduction of price might reduce supply almost to nothing. Nearly all the factors engaged in producing the article in question might be marginal at a price of \$1. Any lower



price, therefore, might drive from this line of production all the labor, land and capital engaged in it, because leaving less as wages, rent or interest than could be secured in some other line or lines.

### § 3

#### *The Incidence of a Tax on Commodities Produced Under Constant Cost*

Assuming, then, that the production of some given commodity is carried on, between fairly wide limits, under conditions of constant cost, let us note the effect which would be produced by a tax on output. Such a tax would, under the assumed conditions, be shifted upon consumers as such in its entirety. For under conditions of constant cost (absolutely elastic supply), all the labor (including management), all the capital and all the land devoted to the production of the commodity in question is marginal as between this and some other line (or lines) of production. Such labor, capital and land will be withdrawn from this line and will enter other lines if the tax reduces the returns received even by a little while the returns to be expected in other lines remain as before. Hence, unless the price of the taxed goods rises by the amount of the tax, not any of these goods will be produced and sold. Consumers must pay the whole tax or get

none of the goods. The higher price so caused will doubtless decrease demand. Consumers will buy less than before of the goods taxed. But unless they pay the entire tax they will not get any of the goods in question for not any will be produced. The burden of the tax therefore distributes itself among all consumers of the taxed goods, including, of course, the producers of these goods in so far as—but only in so far as—they are consumers of them as well.

To illustrate, if wheat were produced at a constant cost of \$1.00 a bushel this would mean that while, at a price of \$1.00, hundreds of millions of bushels could be had, yet, at a price of 99 cents a bushel, none could be had. Every wheat producer would be marginal at a price of \$1.00. Otherwise expressing the matter, no single producer would be willing to remain in the business for a less price but would, if the price were 99 cents, produce some other good or goods instead. If, then, a tax were imposed of 50 cents a bushel, consumers would have to pay \$1.50 a bushel or they would get no wheat. As a matter of fact only a part of the producers of wheat—probably a very small part—are marginal and would leave the business were their returns somewhat reduced. We shall discuss, in a later section,<sup>1</sup> the incidence of a tax when only a few producers are marginal. As-

<sup>1</sup> § 7 of this chapter (III).

suming, as we are here doing, that all of them are marginal, there can be but one possible result of a tax levied on the goods of their production, viz., the shifting of the entire tax upon the consumers of the taxed goods.

Under conditions of constant cost, then, a tax on commodity or gross output is entirely shifted upon the consumers of the commodity taxed, because the tax affects supply so sharply, i.e., because, unless the tax is entirely shifted, the factors of production would drop out of the industry and *all* of the supply would cease. Indeed even if not *all* of the labor, capital and land involved are marginal, but if most of it is and would, therefore, leave the industry rather than bear any of the tax, the tax may be entirely shifted. For if only a very small amount of the goods could be secured from producers who were willing to bear a part of the tax rather than to move into other industries, and if the demand for the goods, even with the tax added to the price, were great enough to require other producers in the field in addition, then demand and supply could only balance at a price higher than before by the amount of the tax.<sup>1</sup>

<sup>1</sup> It may help to get the solution of the problem clearly in our minds if we attempt to express it by diagram—to use the so-called demand and supply curves or lines. In constructing the demand and supply lines it is customary to measure prices from the OX axis upward (see figure 1), and to measure the amounts that

## § 4

*Commodity Taxation and the General Price Level*

When we come to consider the effect of commodity taxation from the point of view of the general price level, we must note that this general level is not neces-

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would be offered and that would be purchased at each such price, to the right. Since, at a higher price, less of a commodity would be bought by purchasers than at a lower price, the demand line

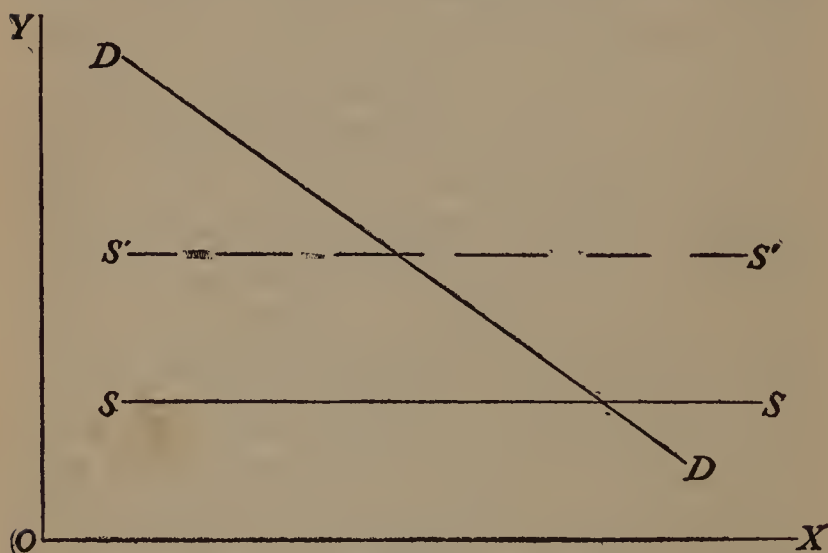


FIGURE 1.

is nearer OY at the high prices and farther from OY at the low prices, lower down. The line DD in the diagram represents demand. Each point of this line indicates the amount that would be bought (measuring to the right) at a given price (measuring up).

In our present discussion we are assuming an absolutely elastic supply, at least between certain limits. This means that at a

sarily—or even probably—made higher by virtue of the tax. If the price of the taxed goods rises, then other prices, including wages and rents, will be likely to fall by a substantially equivalent total amount. If the taxed goods rise in price, because of the tax, by 9 per cent. but make up only  $1/100$  of all trade, then all

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given price the amount supplied may vary anywhere within these limits. Our supply line, therefore, SS, must be, between these limits, a line parallel to the base, OX. The price per unit at which the article can be supplied is measured by the distance up from the base line OX, and the amount which can be supplied at each price is measured by the distance to the right from the vertical line OY. The line SS is the locus of all points so determined.

Let us now assume a tax to be levied on each unit of output, the height of which tax is measured by the perpendicular distance from the line SS to the line S'S'. Each worker, capitalist or landowner who has to pay such a tax must get a return enough higher than before so that even after paying the tax he is as well off as he would be in an alternative industry, or he will enter such an alternative industry. Or, if the tax is levied first on the entrepreneurs, each entrepreneur who continues in the business must get a return high enough to pay the tax, give himself as large a net return as he could get elsewhere and permit him to pay the wages, interest and rent necessary to prevent diversion of his entire labor, capital and land supply to other lines. Under the assumed conditions of constant cost, therefore, the price at which a thousand or ten thousand or a million units of the taxed article can be supplied is higher than before by substantially the amount of the tax. (See, however, discussion in the next section (4) of this chapter.) The effect of the tax is to make the supply line higher than before. The new supply line, S'S', is parallel to the old one, SS, as well as to the base line, OX, and is higher than SS by the height of the tax. It follows that, no matter where the demand line, DD, intersects the new supply line, S'S', the point of intersection must be above the point of intersection of DD with SS by a distance which measures the height of the tax.

other prices may fall by an average of  $1/10$  of 1 per cent. This means, not that the price of the taxed goods rises by exactly the amount of the tax, but rather that the price of the taxed goods rises by nearly the amount of the tax and that other prices, on the average, including money incomes, slightly fall.<sup>1</sup> Were we to assume that there was no money and that all buying and selling of goods was exchange in kind, we should have to conclude that the price of the taxed goods in terms of other goods would be higher than before by exactly the amount of the tax levied.<sup>2</sup> But the fact that, in a money economy, the taxed goods rise by slightly less than the tax and that other prices slightly fall is, for practical purposes, a very minor point, and it remains true that the price of the taxed goods would have to be higher, by the amount of the tax, than the price which would give for the labor, capital and land occupied in their production, what these factors could *now get* in other lines. For what they could now get, after the tax has raised the price

<sup>1</sup> We are here eliminating from consideration possible effects on international trade and the flow of gold between nations. Thus, the tendency of the prices of some goods to fall, if these were goods likely to be exported, might stimulate exports and cause an inflow of gold and a rise of prices, so that the untaxed goods would be about as high as before the tax was levied and the taxed goods higher by almost the exact amount of the tax.

<sup>2</sup> Plus compensation for any extra labor or other sacrifice incident to reckoning and paying it. If the producer or dealer has to advance a tax, he may charge interest on it in his price.



of the taxed goods, tends to be less, as do other prices in general.

To show that the effect of the tax, while raising the price of the taxed goods by almost the amount of the tax, is to lower slightly, on the average, the prices of other goods and of labor services, it is necessary to allude to the relation between the volume of money and credit on the one hand and prices on the other. In the absence of an increased volume of money or credit to spend, or an increased disposition to spend what is on hand, or a diminished available supply of goods, the rise of some prices means a fall of other prices. And the significant fact for our purpose is that although a tax may raise the price of the taxed article and, under the conditions here assumed, will do so, it does not increase the amount of money, the credit-providing facilities of the banks or the disposition to spend money for goods; neither does it necessarily make goods-in-general any scarcer, although it is likely to decrease production of the goods taxed by diverting labor, capital and land into other lines.<sup>1</sup>

Let us suppose, now, a tax on some article, of 50 cents a unit, say 50 cents a yard on cloth previously

<sup>1</sup> Under conditions of increasing cost—not now the subject of discussion—a tax, by diverting labor, capital and land into lines for which they are relatively unfitted, might somewhat diminish the total output of goods.



worth \$1 a yard. This would mean that the cloth, if produced under conditions of constant cost, must rise in price by 50 cents a yard or, if other goods fall somewhat in price, by very slightly less. In any case, the rise is likely to be very nearly 50 cents a yard if the cloth is produced under conditions of constant cost. If, now, the cloth has risen in price, because of the tax, to nearly \$1.50 a yard, either people will buy about as much of the cloth as before or they will not. If they do buy as much as before, or anything beyond two-thirds as much, they will therefore have less money to spend for other things than would else be the case. Then, the demand for other goods falling, these other goods would tend to fall slightly in price. If, on the other hand, the high price of cloth, consequent on the tax, causes less cloth to be bought than before, then some of those who were engaged in producing the cloth will have to turn to other lines of production, will increase the supply of other goods and will so tend, by their competition, to lower the prices of the goods not taxed; but also the money wages of labor and the money returns to the other factors of production tend to become slightly lower. The slightly lower money incomes are offset, of course, by the slightly lower money prices so that the incomes in terms of goods are no less—*except that the taxed goods are higher*. The tax burden therefore falls upon

consumers in proportion as they are consumers of the goods taxed. A tax on all goods would tend to lower all money incomes and to raise all prices of goods. The incidence of such a tax would, of course, be on consumers. A tax on sales is similar except that, if levied every time an article is sold, it may be levied a number of times on the same article. A tax on sales, therefore, would fall upon consumers of the goods sold.

## § 5

### *A Qualification*

But although a tax on all commodities of a given kind produced under conditions of constant cost will be shifted entirely to the consumers, a tax on only a part of such commodities will not be. Thus, assuming cloth production to be an industry of constant cost, a tax on cloth manufacture levied by Massachusetts alone among the United States would not raise the price of cloth.<sup>1</sup> It would merely cause its production in Massachusetts to cease. But if the tax were levied by the Federal government and applied both to imported and domestically-produced goods, the price would rise by a substantially equivalent amount.<sup>2</sup>

<sup>1</sup> Cf. Seligman, *The Shifting and Incidence of Taxation*, fourth edition, New York (Columbia University Press), 1921, pp. 249-250.

<sup>2</sup> See, however, Chapter X, § 6.

## § 6

*The Nature of Increasing Cost*

Let us turn now to the case of increasing cost. By this is meant that it costs more for each additional unit when more goods of a given sort are produced than when fewer are produced.<sup>1</sup> The increased cost of production may be an increased labor cost, an increased capital cost or an increased land cost. To produce an indefinitely larger amount of any commodity may involve increased labor cost because it requires new labor relatively unfitted for the work but well enough paid in other lines so that only fairly good pay will attract it to this; or because it requires persons who, though well enough fitted for the work in question, are able to command such high wages in other lines that only high pay will attract them; or because it requires persons who find the work so relatively distasteful that only large pay will induce them to go into it. A large production may therefore cost more per unit in wages and a small production less per unit. A limited volume of the goods desired can be produced with relative cheapness. But beyond

<sup>1</sup> Cf., on the analysis of cost, Davenport, *The Economics of Enterprise*, New York (Macmillan), 1913, pp. 73 and 77-82. Cf. the present writer's *Economic Science and the Common Welfare*, Columbia, Mo. (The Missouri Book Co.), 1923, Part II, pp. 13 and 70.

a certain point any considerable addition may bring a more than proportionate labor cost. The labor of management of the entrepreneur or business enterpriser is not to be distinguished in this regard from the labor of hired employees. To get more of any article produced it may be necessary to draw into its production entrepreneurs who are relatively unfitted for it or entrepreneurs who, though they can produce these goods efficiently, are able to make such large returns in other lines that only large returns in the line in question will induce them to enter it.

The same principle applies in the case of capital. To get more of any specific article produced may require the use of capital instruments so relatively ill adapted to the purpose that they can be diverted to that purpose only by a higher price for the article. A reduced return, on the other hand, while it would cause some capital to leave the business, would leave still in it, for a long time, capital instruments so well adapted to producing the given article and so ill adapted for other purposes that, despite its lowered returns, the capital could not advantageously be otherwise used. Indeed, some capital is so highly specialized that it cannot be used in any other way without first being partially destroyed and reconstructed.

But in the case of capital it is particularly necessary

to make a qualification which has, indeed, some importance in the case of labor also. Labor which is adapted to one line and not to another may, through a process of reëducation or practice, become adapted to that other. But, even if it does not, a new generation may bring about a readjustment of the numbers in different lines such that the line in increased demand no longer has to be much better paid. In the case of capital, as has been above hinted, an instrument may sometimes be partly destroyed and reconstructed. But whether it can or not, capital instruments wear out and have periodically to be replaced. And new capital can as easily go into one line as another. Hence, *in the long run*, any industry should be able to command the use of a much increased proportion of the available capital of a country or of the world, without having to pay an appreciably higher interest. The situation is not quite analogous to that of a new generation of laborers, for although a new generation makes, in large degree, new choices of occupations and develops new aptitudes, nevertheless laborers are born with certain capacities and tendencies and are, besides, largely influenced by the surroundings and opportunities of their youth.

Increasing cost needs to be considered, also, in relation to the third factor of production, land. To get more of any article produced, e.g., wheat, may

require the diversion from other purposes of land relatively ill adapted to the production of wheat and which will not be so used except on the condition of a higher wheat price. And, on the other hand, a reduced return for wheat raising will cause some wheat land to be otherwise used but will still leave in wheat production land which is so well adapted to it or so poorly adapted to other purposes that even with a lower return change is not advantageous. A higher price may also draw into the production of wheat, land previously unused (it might, also, conceivably, draw into the labor of wheat production persons previously idle, but this is of slight importance if true); and a lower price may cause the entire abandonment of land previously used to raise wheat. The more intensive use of land already used in wheat production also involves higher cost per bushel, because of the fact of diminishing returns in proportion to the labor and capital used under these conditions, although the additional labor used may be equally as efficient as the old.

We conclude, then, that increased production of a good may involve greater marginal cost—greater cost for each additional unit—and that decreased production may involve diminished marginal cost.<sup>1</sup>

<sup>1</sup> Seligman's conception of marginal cost, as presented in the recent (fourth) edition of his book on *The Shifting and Incidence*



It is not unreasonable to suppose that the principle of increasing cost applies to all industry if only production be extended far enough. Doubtless it is true that in certain lines the advantages of division of labor and of using the most effective machinery make production on a large scale cheaper than production by a few scattered workmen. The advantages of effective coöperation offset, for a while, and may more than offset, the tendency to increasing cost. But if production be still further extended, it becomes necessary to draw laborers and land out of lines to which they are relatively well adapted or which (in the case of laborers) they prefer, into the given lines, and this involves increased cost which is not likely to be indefinitely compensated by more effective coöperation, through the utilization of more expensive equipment, etc. Particularly will cost increase with increasing production when the size of plant in the industry in question has already become the most efficient, so that there is no longer any economy in larger scale operation. Under such circumstances, increased pro-

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*of Taxation*, pp. 234-236, is not at all the same as the conception presented here. Seligman would think of the marginal enterpriser in any given business as necessarily being the one who is least efficient and on the verge of failure. But the most successful enterpriser might be marginal if he believed he would be equally successful in another line. Labor (including both managerial and employed), land and capital may all on occasion be marginal between two given industries.



duction of goods requires new plants. Land has to be drawn from other uses to the given use; and labor has to be drawn from other employments to the given employment. But this labor will not be hired nor this land used for the given purpose unless the price of the goods is expected to justify it. In other words, the marginal cost of producing the goods is higher if more is produced and lower if less is produced.

### § 7

#### *The Incidence of a Tax on Commodities Produced Under Increasing Cost*

In the case of production under increasing cost, a tax on output will ordinarily be only partly shifted upon consumers as such and will rest in some degree upon one or more of the so-called factors of production. Thus, suppose an article to be produced under conditions of increasing cost and to be selling at a price of \$2 per unit, this being the price at which demand and supply balance. Some land and labor is marginal at this price and will be withdrawn if remuneration is any less. A tax is levied of 20 cents per unit. Will the price probably rise by an equivalent amount? If the price is raised to \$2.20, less will presumably be bought of the taxed commodity than would be purchased at \$2. If less is bought, then

less labor, capital and land will be required for this kind of production. Competition will lower the price of the commodity and will tend to lower the wages paid and the rental income of the land.<sup>1</sup> Labor and land which are marginal between this and other industries will be driven out. At a price somewhat below \$2.20 but above \$2, enough labor, capital and land will remain in the industry to provide for the now diminished (since price is something above \$2) demand. Suppose the price reaches a new equilibrium at \$2.13. At this price the demand is less than it would be at \$2. But since the new price nets the producing factors only \$1.95, the amount supplied is also less than it would be with a net price of \$2. Wage earners in the industry get slightly lower wages but remain in it—except those marginal or near-marginal ones who do not remain—because it continues to be, all things considered, preferable to other action. Owners of land and capital, though they also may receive less than before from the production of the taxed goods, keep these means of production in the industry—except where they are marginal or near-

<sup>1</sup> And, temporarily, the interest on the capital in the industry. But when the old capital wears out and new must be had, the new capital can hardly be obtained for less than is received in other lines. Distaste for an industry is not an element of such importance in relation to capital as in relation to labor.

marginal—because, even despite the tax, nothing else seems better worth while.

As in the discussion of taxes on goods produced under constant cost, so here, it should be pointed out that the high price of the taxed goods may operate somewhat, either by decreasing the currency available to spend for other goods or by forcing some labor, land and capital into other industries and slightly increasing, there, the supply of these factors and of goods, to lower prices and money incomes a very little in these other lines. It is not to be supposed that the tax will raise the general average of prices and money incomes except as it may decrease efficiency by diverting factors of production out of their best lines and so affecting total production. Otherwise, the increase of price of the taxed article tends to be offset by a decrease of other prices, including in these other prices, wages, interest and rent. In any case, the tendency will be for the average of money incomes to fall.

To make clearer the way in which a tax on output in the case of increasing cost may be diffused, let us consider the case of a \$2 tax per ton when the coal is produced from mines of varying richness and accessibility. From mines of class A, coal can be produced for \$3 a ton. Mines of class B are not worth operating unless the possible price is \$5. Mines of

class C will be unused unless the possible price is \$6.<sup>1</sup> Suppose the price which equalizes demand and supply to be, prior to the introduction of the tax, \$6, the consuming public requiring the use of some or all of the class C mines in order to have enough coal, and being willing to pay \$6 to get the desired amount. Will the price rise to \$8 after the tax of \$2 a ton is levied? Probably not. A price of \$8 will almost certainly curtail demand. And unless a large proportion of the supply comes from mines of class C, demand may be so far curtailed, even with a price of only \$7, that the mines of class A and class B can satisfy it. The result of a \$2 tax might therefore be a rise of price from \$6 to \$7, abandonment of the C mines, and continued operation of the A and B

<sup>1</sup> The condition of "diminishing returns," as it bears on the problem of the incidence of taxation, has reference to the fact that, *at any given time*, a larger supply requires a higher price than a smaller supply. It does not have reference to changes, such as soil exhaustion or the drawing out of the minerals from a mine, taking place *over an extended period*. The question how far a tax levied, now, will cause a price to rise, cannot be solved by inquiring whether, in twenty years, certain resources will be exhausted. Yet Seligman, in his book on *The Shifting and Incidence of Taxation*, fourth edition, p. 241, says: "The action of the law of diminishing returns manifests itself in two ways: In the first case of diminishing returns . . . typified by agricultural land, the actual produce becomes yearly less; in the second case, illustrated by mining or badly conducted forestry, the nominal produce may remain the same, but the actual return on the investment of capital becomes continually smaller."

mines.<sup>1</sup> The tax might involve, also, a less intensive use of the A and B mines, the passing by, for instance, of some of the poorer veins. It might not pay to hire so many men to exploit these mines.

<sup>1</sup> It ought not to be necessary, in the present stage of economics, to insist over and over again that the shifting of a tax on goods produced in a competitive industry is consequent upon how the tax affects supply. If the tax lessens supply then demand and supply will balance at a new and higher price. If it does lessen supply, the price will not be kept from rising—say the price of wheat—by any deliberate plan on the part of some hundreds of thousands of independent producers, such as Professor Seligman seems to imagine in the following passage (*The Shifting and Incidence of Taxation*, fourth edition, p. 268) :

“Suppose that in three countries, A, B, and C (let us say the Argentine, the United States and England), the cost of producing irrespective of taxation, a bushel of wheat at a given time is 50, 70 and 90 cents, respectively, and that the conditions of the market are such that the wheat sells at the moment at 70 cents a bushel. If a tax of 5 cents a bushel is imposed in each of these countries, what will happen? In the long run, indeed, the tendency would obviously be for the price to rise to 75 cents. The long run, however, may never come to pass. The producers in country A, who have the whip hand, may fear that if they put up the price to 75 cents they may spoil the market for the next year, by inducing country B to increase its acreage or preventing C from diminishing its output. This consideration, together with the fact that they are already making large profits as intra-marginal producers, may lead the producers in A to be content with the old price, despite the tax.”

No comment will here be made on the supposition that *all* the producers in any one country have the same “cost.” But can we imagine the farmers of “country A” each sitting on his own fence and deciding not to charge for his wheat as much as the current market conditions would allow him to get, in the fear that, if they did, country B might “increase its acreage” or country C be prevented from “diminishing its output”!

If the article taxed were produced on land which could be used for something else, the tax might not cause abandonment of any of this land, as in the case of the C mines, but might instead cause diversion of it to other purposes. And conceivably the best land for the taxed purpose—if it were also sufficiently well adapted for other purposes—might be so diverted as well as the worst. Similarly, as we have already seen,<sup>1</sup> a tax may divert to other lines some of the labor or capital, or both, employed in the taxed line, but may leave in the taxed line enough labor and capital, even though the tax is but partly shifted, to satisfy the now reduced demand.

## § 8

*Supply and Demand in the Case of Increasing Cost*

Taking into consideration the marginal and non-marginal elements in the various factors of production, we can assume for some article the following supply and demand schedule:

<i>Supply</i>			<i>Price</i>			<i>Demand</i>		
6 million pounds			12 cents per pound			2 million pounds		
5	"	"	10	"	"	3	"	"
4	"	"	8	"	"	4	"	"
3	"	"	6	"	"	5	"	"
2	"	"	4	"	"	7	"	"
1	"	"	2	"	"	10	"	"

<sup>1</sup> This section.



The price will of course be fixed where supply and demand are equal, viz., at 8 cents per pound. If, now, we suppose a tax of 4 cents a pound, all those elements or factors in production which were marginal at 8 cents will be marginal at 12 cents and it will require a price of 12 cents to get the same supply, 4 million pounds, as was previously available at 8 cents. Similarly, to get a supply of 3 million pounds, the price must be 10 cents instead of 6 cents. We may, therefore, construct a new supply schedule, the figures in which correspond with those of the supply schedule above, but at prices, for each supply, 4 cents higher than before, viz.:

<i>Supply</i>			<i>Price</i>		
6 million pounds			16 cents per pound		
5	"	"	14	"	"
4	"	"	12	"	"
3	"	"	10	"	"
2	"	"	8	"	"
1	"	"	6	"	"

Let us now put together our original demand schedule and our new supply schedule:

<i>Supply</i>			<i>Price</i>			<i>Demand</i>		
6 million pounds			16 cents per pound					
5	"	"	14	"	"	"		
4	"	"	12	"	"	"	2 million pounds	
3	"	"	10	"	"	"	3	"

	<i>Supply</i>		<i>Price</i>		<i>Demand</i>
2	" "	8	" "	4	" "
1	" "	6	" "	5	" "
		4	" "	7	" "
		2	" "	10	" "

We then find that the price which equalizes supply and demand is 10 cents instead of 8 cents as before. A tax of 4 cents has caused a price rise of 2 cents. Under somewhat different conditions of supply or demand, or both, it might have caused a price rise of 1 cent, 2.5 cents, or 3 cents, or some other amount not above 4 cents.<sup>1</sup>

<sup>1</sup> Suppose, next, we represent our schedule by supply and demand lines or curves. Each point on the supply curve will be fixed by measuring the price vertically upward from the base line OX and the amount that would be supplied at that price to the right from the line OY. The locus of all such points makes the supply curve or line. Similarly, we represent the amount that would be demanded at each price by measuring the price upward and the amount demanded at that price to the right; and the locus of such points is the demand curve or line (see figure 2, on page 81).

The demand curve or line is unaffected by our assumed tax of 4 cents per unit. If the price rises, less will be demanded, but this fact is already expressed in our original line representing demand (see figure 2), since the higher points which represent demand at the higher prices are nearer the OY line, thus indicating less demand at those prices. The supply line, however, is affected by the tax, since each possible supply—measured to the right of the OY line—is now forthcoming only at a price—measured up from OX—higher by the amount of the tax than was necessary to bring out a corresponding supply before the tax was levied. In other words, the new supply line (after the tax) is exactly parallel with the old and is higher than the old by the amount

## § 9

*Long Run and Short Run Shifting*

Before quitting the consideration of the shifting of taxes on commodities competitively produced under

of the tax. In the figure below (figure 2), the demand line is represented by  $DD$ , the original supply line by  $SS$  and the supply line after the tax by  $S'S'$ . It is to be noted that the point of intersection of supply and demand lines is higher after the tax

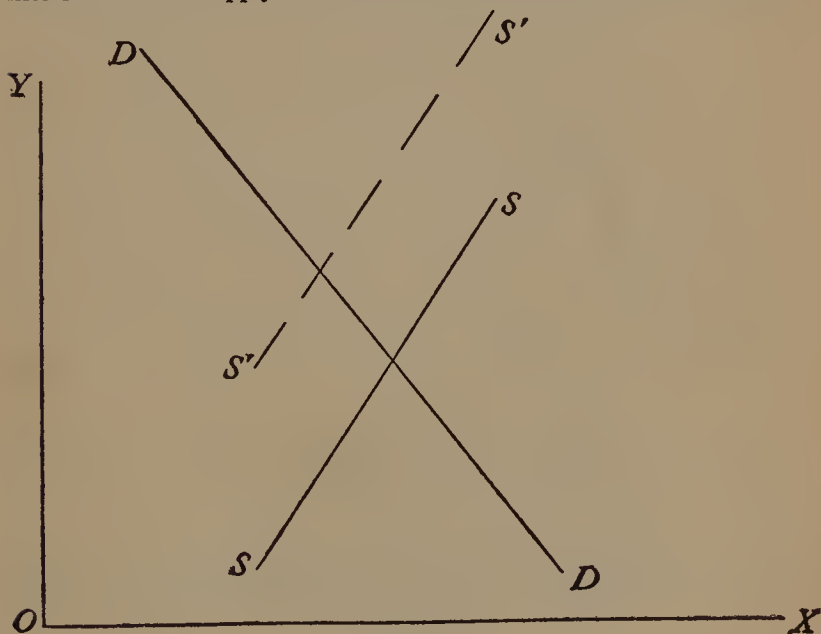


FIGURE 2.

than before, but not by the entire amount of the tax, i.e., not by the entire vertical distance between  $SS$  and  $S'S'$ .

In the illustration chosen, the demand was somewhat elastic, i.e., a higher price was assumed to result in fewer sales (a smaller demand) than a lower price. Since, also, most producers would take less rather than cease production (production being under

conditions of constant and increasing cost, we should make a distinction between the long-run and the short-run shifting of a tax. Suppose, for instance, a tax of \$1 a pair to be levied on all the manufacturers of

conditions of increasing cost), only a part of the tax could be shifted upon consumers. But suppose demand for the taxed commodity were, within wide limits of price, absolutely inelastic! Then, within these limits, as much would be bought at a high price as at a lower. Doubtless there is no case of an absolutely

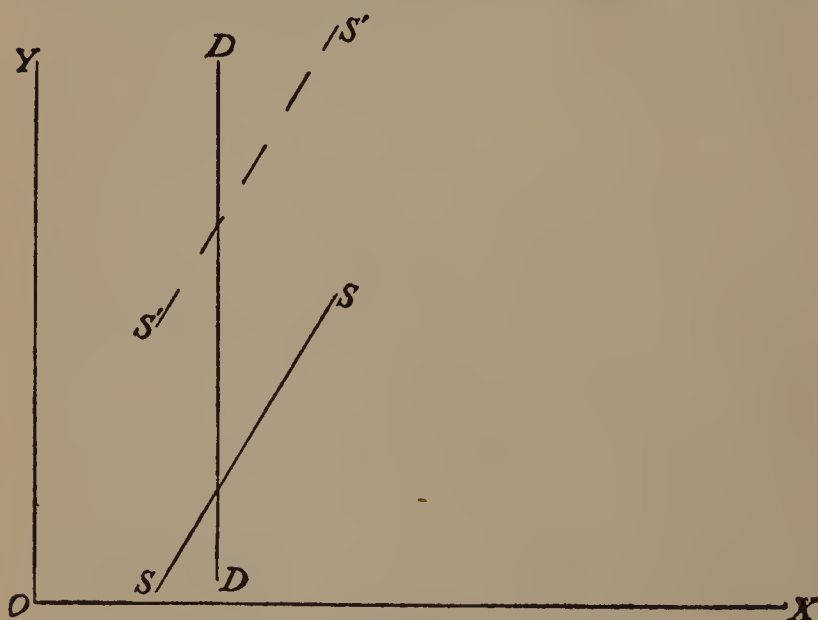


FIGURE 3.

inelastic demand. An approximation to such a demand might be found in the case of some relatively inexpensive surgeon's instrument which no one but a surgeon would buy, however cheap, and which almost every surgeon would purchase even at a much higher price. Such a demand would be represented diagrammatically by an almost vertical line, every point of which between certain prices—say, in our example, between 4 cents and 16 cents—

all shoes. Would most of the manufacturers quit the business rather than accept smaller returns? Would most of the owners of the land and buildings devoted to producing the shoes, turn their property to other uses rather than to accept lower rent and interest on their property? Would most of the workers in shoe manufacturing plants turn to other kinds of work rather than to accept lower wages? Would persons who were about to invest new capital in the industry and young men who were about to enter the industry as workers, divert their capital and their labor respectively to other industries rather than take diminished earnings because of the tax? Unless the land, capital and labor *already in the industry is marginal or nearly so*, the tax may have no very great immediate effect upon supply and it may not, therefore, be immediately shifted, in any large degree, to consumers.

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was about the same distance from the line OY. If we reconstruct our diagram (see now figure 3, on page 82), substituting such a demand line for the one in figure 2, we shall see that the result of the tax, in the case of such a demand, would be to raise the price by practically the entire tax. On the other hand, were demand absolutely elastic, so that the slightest rise in price would decrease sales to zero, no part of the tax could be shifted upon the consumers.

(Seligman, in his *Shifting and Incidence of Taxation*, fourth edition, p. 229, defines inelastic demand in a way which seems to the present writer utterly inconsistent. He says: "The demand may be inelastic in the sense of being constant, so that it always remains the same; or it may be inelastic in the sense that any attempted increase completely destroys the demand.")

The machinery used for shoe manufacturing may not be, practically, usable for anything else. And the men who have spent a lifetime in the work of making shoes, though they would not, in many cases, have chosen that work had they foreseen the tax, may realize that only if the tax is very high can they afford to leave the occupation in which they have acquired skill for one with which they are totally unfamiliar. Although, as a long-run proposition, the industry may approximate conditions of constant cost, it is likely, as a short-run proposition, to be an industry of increasing cost, at least so far as our present problem is concerned. That is, it is an industry in which, perhaps, some few workers and property owners are marginal but in which many are supra-marginal so that they would remain in, or would keep their capital in, the business even at considerably smaller return, and a tax on their output might conceivably not be immediately shifted to consumers or might be shifted in a smaller degree.

But the same industry, as a long-run proposition, might be much more nearly an industry of constant cost, so that a tax upon its products would be, in the long run, almost entirely shifted upon consumers. For although the tax might not cause owners of specialized capital to attempt diverting it to other lines of production, it would induce them to divert into



other lines their depreciation funds which were being set aside for replacement of worn-out and obsolete capital and it would induce them and others to make any new investments elsewhere rather than in the taxed line. Similarly, although such a tax might not cause many men who had thoroughly learned to carry on one of the kinds of work required in shoe production, to undertake learning any new trade, even though the tax considerably lowered their wages in the old, yet as these workers died or became superannuated, the lower wages consequent on the tax might greatly restrict the entrance into the trade of a new generation of workers and might so, by limiting the supply of the shoes, very considerably raise their price, and make possible eventually, for those who did enter the trade, wages corresponding to those in other lines.

Since, during the lapse of such a period, there may be changes in taste, changes in the technology of production, and currency inflation or deflation, it is of course never possible to predict that the price of the taxed article *will be* higher after the tax than before; still less is it possible to predict how much higher it will be or how long it will take for it to be higher. But we can say that the price will eventually be higher, if the tax is levied, than it would be with all other conditions the same, if the tax were not levied. If it falls, despite the tax, because of

other conditions, then it would fall more except for the tax. If it rises, then it rises more than it would if there were no tax. The effect of the tax, taken by itself, is in the direction of a higher price.

### § 10

#### *The Case of Decreasing Cost*

In some studies of incidence, attention is devoted to the taxation of goods produced under conditions of decreasing cost. It is supposed that some goods are produced under conditions such that a relatively large production involves a smaller cost for each unit produced than a relatively small production.<sup>1</sup> For the most part this condition is ordinarily believed

<sup>1</sup> The condition of "increasing returns," in so far as it has any significance in the matter of the shifting of taxation, has reference to the fact that, at any given time or during any given period, a larger supply can be produced at a lower unit cost than a smaller supply. It does not have reference to the possibility that methods of production may so improve as to make possible lower unit cost in (say) twenty years than now. Yet Seligman in his *Shifting and Incidence of Taxation*, fourth edition, pp. 242-243, says: "Thus, where industry is not stationary or retrograding, the natural selection of entrepreneurs means production at a diminishing cost. . . . Suppose, for instance, that in any enterprise the economies resulting from concentration and the lower cost due to natural selection of the producers, are just about counterbalanced by the difficulties of securing additional room for production, or by drawbacks connected with the marketing of an increased output. In such a case, where the forces making for increasing returns and those making for decreasing returns are evenly balanced, the result will be production according to the law

to be due to large-scale operation.<sup>1</sup> A larger production is believed to be cheaper than a smaller production in the same plant or under the same management, because of supposed advantages of large-scale production. Some of the alleged advantages of such production are, within limits, very real. Thus, certain goods may be produced most cheaply by hand if only a small quantity can be marketed, somewhat more cheaply by simple machinery if a greater quantity can be sold, and still more cheaply by large and complex machinery if enough can be sold to justify the purchase and use of expensive instruments. Likewise, increased scale of operation under the same management, without proportionately increased expenses for managerial force, advertising and salesmen, may mean cheaper average production for each concern in the business. The marginal cost of additional units, is also less than the marginal cost if only a few goods are produced. But when cost decreases with increas-

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of constant returns." And then, with never a hint that "increasing returns" considered as a historical process taking place over a period of years is not "increasing returns" in a sense relevant to the problem, Professor Seligman goes on (page 245) to consider the incidence of taxes levied on commodities produced under conditions of "increasing returns."

<sup>1</sup> Although there is no intention to deny that there may be some economies of production—e.g., the growth of a large available specialized labor force—resulting from the mere increase of total production and not dependent upon large production by a single establishment.

ing output, a concern which charged a price covering only *marginal* cost would consistently lose money. Average cost must be covered, including managerial and other expenses, or business cannot be continued.

A distinction has sometimes been made,<sup>1</sup> however, in the discussion of the advantages of large-scale production, between so-called internal and so-called external economies. Where the economies of large-scale production are external, there is no resulting advantage in large-scale production *in a single plant* or *under a single management*. There is merely an advantage in large-scale production within a given area. Thus, the extensive development of an industry in a given city may lead to the near-by development of auxiliary industries, the establishment of trade schools from which better-trained workers can be secured than would otherwise be available, etc. It may mean larger use of electric power purchased from a regulated public-service power-supplying company and consequent lower rates for such power. Here, of course, the advantage of larger output by many companies in (say) manufacturing is due to an economy in the production of power consequent on large *power* production by a single plant. But there is not, on that account, any advantage of or tendency towards monopoly in the

<sup>1</sup> See, especially, Marshall, *Principles of Economics*, sixth edition, London (Macmillan), 1910, pp. 266-285.

manufacturing industry—or industries—using such power. The price per unit of the power—granted a prohibition of discrimination among competing users—is lower to all users because it can be supplied more cheaply when much is wanted, whether the power is wanted by a single manufacturer or by several. Under such circumstances a tax on the manufactured article might, by diminishing demand and so reducing output, cause less use of the power and so necessitate a higher price per unit of power. Hence, if many of the producers were marginal, price may have to rise by more than the tax in order that the demand for the manufactured article may be met. The rise in price may approximate the tax plus the increased cost per unit of manufacturing the taxed article in smaller quantities. And a similar conclusion is to be arrived at if the external economies in question are of any sort whatever, so long as there are such economies.

But if external economies from large-scale production *do not* tend towards monopoly, internal economies from large-scale operation *may not*. Whether the enjoyment of internal economies from large-scale production will tend towards monopoly depends upon whether these internal advantages continue up to the point where one concern is large enough to fill the entire demand for the product. In an industry such



that the internal advantages of large-scale operation cease before any one concern is large enough to fill the entire demand, we may expect to have, not one concern but a number of concerns. To repeat, one concern or plant of the size of maximum efficiency cannot provide all the goods desired; increased size of that concern or plant is no advantage and may be a disadvantage; hence, we have several such plants. This means, in the large, production under conditions of constant or even increasing cost, conditions which we have already considered, rather than under conditions of diminishing cost. It is true that any one concern can produce, perhaps, 10,000 units a day at a much lower cost than 10 units a day. But if 10,000 units is the normal output of a plant of maximum efficiency size, then what competition will compel the public to pay is a price that will yield normal returns on the investment in such a plant. What the cost of production on a much smaller scale would be may have no significance at all as an influence on price. If the required output is 70,000 units a day, then there must be in the industry, presumably, some seven plants, each producing about 10,000 a day.<sup>1</sup> The average cost is then likely to be as great if 70,000

<sup>1</sup>There is not the least intention to claim that, in real life, all plants have the same capacity. But there are normally limits above and below which production is likely not to be profitable.



or more units are wanted per day as if the demand is for only 10,000. Cost per unit does not decrease. Reckoning by the 10,000 units cost remains constant as production increases and may even increase.

In case cost of production increases with increasing output, average cost and marginal cost cease to be equivalent and marginal cost must be met in order that output shall be kept up. Even although each of seven plants is as efficient as each other, the marginal cost when 70,000 of the goods are produced may be greater than when only 10,000 or 20,000 are produced. For more labor and more land—as well as more capital—must be drawn from other lines, and enough must be paid to draw into the given line not only the labor and land readiest so to move but also some which can do better elsewhere unless returns in the given line are high. If seven plants are required instead of (say) two, the cost of production as ordinarily reckoned by accountants may be larger even in those two. For the higher wages and rent which the extension of production requires to draw in the labor and land needed in the other five plants, will be likely to compel the first two, also, to pay higher wages and rent lest the others outbid them for men and space.<sup>1</sup>

<sup>1</sup> If the concern owns the real estate used, the logical thing will be to reckon the constructive rent at a higher figure.

If, then, several concerns can as effectively or more effectively supply a market than one gigantic concern, we have the conditions of constant or increasing cost.<sup>1</sup> If, however, on the other hand, there is progressive advantage in increased scale of operation by one concern to or beyond the point where the entire market can be supplied by it, there is a practically irresistible trend toward monopoly. Each concern by increasing its business can afford to sell at a lower price; each concern may offer a lower price as a means to that increase of business which will make the lower price profitable. Any concern which does not lower its price will lose business and will find, in consequence of such smaller business, that even the old and higher price is no longer profitable. To raise the price is suicidal. To lower it may possibly accomplish the elimination of rivals. Hence, in the absence of agreement, there will probably be cut-throat competition ending in monopoly.

It would seem, then, only doubtfully worth while to discuss the incidence of a tax on the output of a *competitive* industry operated under conditions of *de-*

<sup>1</sup> Seligman obviously has an entirely different concept of "constant cost." Otherwise he could not say (*The Shifting and Incidence of Taxation*, fourth edition, p. 236): "Whenever all the articles in a given class are produced at the same cost, in fact, the resulting profits are monopoly profits and not competitive profits. Not only does profitable production at the same cost imply monopoly, but monopoly necessarily means production at identical cost."

*creasing* cost. A tax on goods produced by such an industry—assuming for the moment several plants not combined and no one of which had yet driven its rivals from the field—would, of course, if it raised the price at all, diminish demand. If this caused the elimination of (say) one of the rival concerns, and if all of the other concerns had been almost marginal, these others would have to charge more than before by substantially the amount of the tax, in order to make the business worth while. Conceivably one (or more) of such concerns might pay the tax without raising the price in the hope of driving out its rivals and extending its business; but this is simply to say that one (or more) of the concerns might, *in effect*, reduce the price for that purpose, and such action would perhaps be as likely before the tax as after. If the tax merely drives out one or more of several concerns most or all of which are substantially marginal and the others have to raise the price by the amount of the tax in order to remain in business, we have practically the conditions of constant cost. The difference is that now we are dealing with a temporary condition of unstable equilibrium tending rapidly toward monopoly. Only during a transition period when several concerns are still necessary and before the processes tending toward monopoly have time to work themselves out, can we assert that the tax is

shifted in entirety to the consumers. After that the conditions of monopoly apply, shortly to be discussed.

Suppose, however, that the effect of the tax, when it decreases demand, is not to eliminate any competitor, for some time, but to reduce the sales and output of each, forcing each one to produce on a smaller scale than before. Then it may be asserted that each must charge more, first to cover the tax and, second, to cover the increased unit cost of the smaller output, and that the public must pay more or some of the concerns will be eliminated. But if some of the concerns are eliminated the others can produce on the old scale and at the old unit cost and the price need not be higher than before by more than the tax. And if all but one are finally eliminated, we have the conditions of monopoly without which, in the type of industry in question, no stable equilibrium will be reached anyhow and after which price will be determined on different principles. We shall turn, in our next chapter, to an analysis of the incidence of taxes on monopoly output and on monopoly profits.

## § 11

### *Another Effect of Commodity Taxation*

Before concluding this chapter we ought to notice an effect of the taxation of any given commodity

which is in addition to the shifting of such taxation. Not only do taxes on specific commodities result in higher prices of those commodities for consumers who continue to buy them, but also they cause some who would buy were there no tax, to forego purchasing, and they cause some who would buy much were there no tax, to buy little. Those who, thus, are, by a tax, kept from purchasing what they need or desire and are so induced to purchase instead other goods which less satisfactorily meet their requirements, may properly be regarded as losing something. They are not as well off in utilities as they might be. But in so far as they are prevented from purchasing, they pay no tax. What they lose the government does not gain. Here, so far as the community as a whole is concerned, there is a net loss of utilities. Yet if the tax is levied on commodities the consumption of which is injurious, the net effect may be beneficial.

## § 12

### *Summary*

The principal conclusions of this chapter can be briefly stated. Where goods are produced under conditions of constant cost per unit whether production be large or small, a tax on these goods will be shifted entirely upon consumers; and accordingly as condi-



tions of constant cost are closely approximated, nearly all of the tax will be so shifted. If, however, the taxed goods are produced under conditions of increasing cost, the burden of the tax will not be shifted entirely upon consumers; part of the burden will remain upon those who do the work, provide the capital or own the land applied to producing the taxed goods or upon two or all three of these classes. Consumers will be likely to find the price somewhat higher because of the tax and, where demand is absolutely or almost absolutely inelastic, higher by the full amount or nearly the full amount of the tax. On the other hand, in proportion as demand is elastic, more of the burden rests upon the factors—land, labor and capital—on the producing side of the market. So far as a tax on any goods causes people to forego consumption of those goods to avoid the tax, there is an injury to consumers uncompensated by any gain to government. But if the goods foregone are harmful, there is a net benefit. When cost diminishes per unit as size of establishment increases, and this tendency continues to apply up to the point where all the business is done by a single concern, competition is a condition of unstable equilibrium. Monopoly is practically inevitable. But the laws of tax incidence under monopoly are not the same as under competition, and require separate consideration.



## CHAPTER IV

### TAXES ON COMMODITIES MONOPOLISTICALLY PRODUCED

#### § 1

#### *The Extreme Possibilities of Incidence in the Case*

One of the most interesting—but perhaps, also, one of the most intricate—parts of the theory of incidence is the part which deals with the taxation of goods produced by monopoly. Such taxation may, according as the conditions of demand vary in one way or another, cause the price to rise not at all, cause it to rise less than the tax, or cause it to rise by as much as or even more than the tax. To illustrate the first case, suppose the demand for a certain kind of goods produced by a monopoly to be inelastic up to a given price, and beyond that price to be extremely elastic. Then any appreciable rise above the given price would practically destroy the demand. In the absence of a tax the monopoly producing the article might easily find the price yielding the highest net return to be the highest that could be charged without overtopping this very elastic demand and in con-

sequence greatly curtailing sales. A tax levied on output might, therefore, not raise the price at all. The monopoly might find that it could better afford to pay the tax on each unit of commodity sold and dispose of the former number of units per week or per month than to raise the price so as to cover the tax or any considerable part of it, and, as a result, lose nearly all of its business.

Let it be noted that whenever, in this chapter, net monopoly profits are referred to, the reference is to an excess yield above the normal competitive return on a fair value of the plant. Since the ordinary interest return could have been enjoyed on this capital if otherwise used, it may be reckoned as part of the reasonable cost of doing the business. Monopoly profits are returns in excess of such interest.

But the same monopoly which, under one set of demand conditions, would not at all raise its price, might, if the conditions of demand were widely different, raise its price by the entire tax or even more than the tax. Thus, suppose that, above the price which yielded, before the tax was levied, the highest net return, the demand becomes more and more inelastic, as might happen if the rise of price eliminated buyers of a certain class while the buyers of another class would continue to buy even in the face of a still further and larger rise of price. In the absence

of the tax the price of highest net return might be low enough to catch some of the elastic demand. The net monopoly profits per sale might be great enough, even at a low price, to make that price profitable if sales were much greater than at a higher price. But after the tax is levied the net profits per sale at the old price may not be large enough to justify maintaining that price even with the large sale which may be so assured. While it does not pay to cut sales in half in order to increase net profits per sale from 4 cents to 6 cents, it does pay to cut sales in half, after a tax has been levied of 3 cents per sale, in order to increase net profits per sale from 1 cent to 3 cents. And when price has been so increased by 2 cents a unit it may be that still further increase will not for some time seriously diminish demand. For the demand at still higher prices may be almost as great, i.e., demand may be, through a considerable range of prices, inelastic. It may well happen, then, that the price of highest net return will be higher than the old price by a great deal more than the tax.

Perhaps the distinction between our two cases (where none of the tax is shifted and where price rises by more than the tax) will be clearer if we illustrate them by hypothetical tables. In the illustrations we shall assume conditions of constant cost, i.e., that whatever the output the cost per unit does

not change. We will suppose first, then, respecting the sales, cost per unit, net profits per unit, etc., of a given monopoly, the following figures:

<i>Price</i>	<i>Sales</i>	<i>Expense per sale</i>	<i>Profit per sale</i>	<i>Profits</i>
\$15	0	—	—	\$ 00
14	10	\$8	\$6	60
13	100	8	5	500
12	200	8	4	800
11	260	8	3	780
10	330	8	2	660
9	410	8	1	410
8	500	8	0	000

The price of highest net return is here \$12. Suppose, now, a tax, on each article produced and sold, of \$1. This would reduce by \$1 the profit per sale at each price. The profits on all sales would then be at each price as follows:

<i>Price</i>	<i>Profits</i>
\$15	\$ 00
14	50
13	400
12	600
11	520
10	330
9	000
8	—500

The price of highest net return is still \$12.<sup>1</sup> The tax has not caused any rise in the price because the demand, for price increases above \$12, is so elastic.

Consider now a case similar to this in all respects except that the demand, instead of becoming elastic as the price rises above \$12, is less sensitive to price increases above that point.

<i>Price</i>	<i>Sales</i>	<i>Expense per sale</i>	<i>Profit per sale</i>	<i>Profits</i>
\$15	100	8	7	700
14	130	8	6	780
13	158	8	5	790
12	200	8	4	800
11	260	8	3	780
10	330	8	2	660
9	410	8	1	410
8	500	8	0	000

The price of highest net return is still \$12 as in the case just previously considered. But the effect of a \$1 tax on each unit of output is to make the price rise to \$14. For the profit per sale is \$1 less, at each price, with the tax than without it, and therefore the total profits at each price would be as follows:

<sup>1</sup> In our illustration, no attempt has been made to consider intermediate or fractional prices. But it would be entirely possible to conceive of a case where no rise of price, even fractional, would take place because of the assumed tax.

<i>Price</i>	<i>Profits</i>
\$15	\$600
14	650
13	632
12	600
11	320
10	330
9	000
8	—500

The price of highest net return is now \$14. A tax of \$1 per unit output would, under the conditions of our illustration, cause a price rise of \$2.

It appears, therefore, that, according to the conditions of demand, a tax on monopolistically produced goods may result in no price rise at all or in a price rise which may even be greater than the tax.<sup>1</sup>

## § 2

### *When a Tax on Monopolistically Produced Goods Causes a Price Rise of Just Half the Tax*

But while the possibilities of price change due to a tax on a monopolistically produced article, are, according as demand becomes relatively more or less elastic beyond a certain price, thus extreme, there is

<sup>1</sup> See Marshall, *Principles of Economics*, sixth edition, London (Macmillan), 1910, pp. 481, 482.



an intermediate case which is comparatively simple. If we suppose a demand which is perfectly regular, i.e., which increases in arithmetic ratio as price falls; if the monopoly produces under conditions of constant cost; and if we assume the monopoly concern to act intelligently on these facts, then we shall find that a tax on output will bring a rise of price per unit of just half the tax. Consider by way of illustration the following possible case:

<i>Price</i>	<i>Sales</i>	<i>Expense per sale</i>	<i>Profit per sale</i>	<i>Profits</i>
\$20	0	—	—	\$ 0
19	20	\$8	\$11	220
18	40	8	10	400
17	60	8	9	540
16	80	8	8	640
15	100	8	7	700
14	120	8	6	720
13	140	8	5	700
12	160	8	4	640
11	180	8	3	540
10	200	8	2	400
9	220	8	1	220
8	240	8	0	000

Here the demand increases by just 20 with each reduction of \$1 in price. The price of highest net return is \$14. But if a tax is levied of (say) \$8 on each unit of output, the price of highest return will

be \$18. The expense per unit will be \$16 (counting the tax of \$8) instead of \$8. Therefore the profit per unit will be \$8 less at each price than if the tax were not levied. And the total profits at each price will be:

<i>Price</i>	<i>Profits</i>
\$20	\$ 00
19	60
18	80
17	60
16	00
15	—100
14	—240
13	—420
12	—640
11	—900
10	—1200
9	—1540
8	—1920

The profits will be seen to be largest at the price of \$18, which is \$4 higher than before, i.e., higher than before by half the amount of the tax. The reader can, if in doubt regarding the soundness of the general conclusion, try other figures for prices, sales and expense. Provided the expense per unit is constant and provided the demand changes by the same amount for each unit change in price, the price of highest net return after the tax will prove to be higher than

the price of highest return before by just half the tax.<sup>1</sup> The figures for demand may indicate greater

<sup>1</sup>The conclusion we have just reached will perhaps be more convincingly demonstrated to some if we present the argument graphically. Using the upper right hand quadrant as is customary in drawing demand and supply curves, measuring price per unit upward from the base line,  $OX$ , and amount to the right from the line  $OY$ , we construct a demand line,  $DD'$ , and a cost line  $CC'$  (see figure 4).

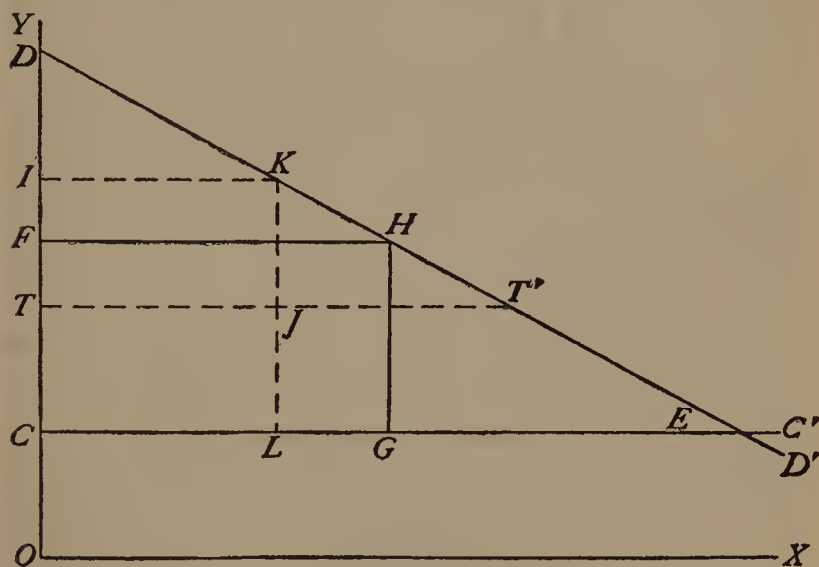


FIGURE 4.

The  $DD'$  represents a demand which changes by equal amounts with each unit change in price. For every unit drop in the vertical distance from  $OX$  there is a fixed increase in the distance from  $OY$ , hence the line is straight. The cost per unit is measured by the vertical distance from  $OX$  to  $CC'$ . The fact that the line  $CC'$  is parallel to the base line  $OX$  indicates that the cost per unit is considered to be constant regardless of whether the number of units produced is a thousand or a million. Under competition price would be fixed where the demand line intersected the cost

or less elasticity, without changing this result. Only if the demand is not regular will the result be different. Thus, if, with demand as above represented for

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line (the latter being then the same as the supply line). But a monopoly, controlling supply, fixes price where the net profits are the largest. This is where the total sales multiplied by the net profit per sale make the greatest product. Graphically expressed, it is where the rectangle constructed within the triangle CED is the largest. But it is a well-known conclusion of geometry that the largest rectangle which can be thus constructed in a right-angled triangle is one formed by drawing the perpendicular bisectors of the two legs of the triangle to their point of intersection, or—for this comes to the same thing—bisecting all three sides of the triangle and drawing a line from the middle of each leg to the middle of the hypotenuse. This conclusion can be sufficiently established for right-angled triangles of various specific proportions by any reader who cares to take the trouble, without the use of mathematical formulæ. Thus, suppose the distance CD to be 10 and the distance CE to be 20. If these distances are bisected, the rectangle CFHG will be  $5 \times 10$  and will have an area of 50. This is the largest rectangle which can be constructed within the triangle CED. Thus, if we try to construct a longer rectangle, having 12 for one side instead of 10, this will necessarily shorten the other side from 5 to 4. But the product of 12 and 4 is 48, which is less than 50. Likewise, if we try to construct a wider rectangle, lengthening the shorter side from 5 to 6, this will necessarily reduce the longer side from 10 to 8, making a product of 48, which is not so much as 50. Whether, in the triangle CED, the side CD is shorter than, equal to or longer than CE, the largest rectangle will in every case be the one obtained by connecting the middle points of the three sides as above indicated.

Let us see, now, whether, in this case, one-half the tax will be added to the price. Letting the tax per unit output be represented by the distance CT, the new unit cost will be the former cost plus the tax, or OT. The new line of constant cost, including, now, the tax, will be TT'. The rectangle representing largest net return must now be constructed within the lines OY, DD' and TT'. This rectangle is TIKJ. Since the distance TI was ob-

each price up to \$14, it should suddenly become much more elastic above \$14 so that, at any higher price, the demand was zero or nearly zero, the tax would,

tained by bisecting TD and the distance CF by bisecting CD, the distance FI will be half of the distance CT. In words, the new price is higher than the old by just half of the tax. Expressing the matter in figures, let us suppose the cost per unit, OC, to be 4, and the distance CD to be 12. Then the price of highest net return, OF, will be 10 (CF being half of CD). If a tax is imposed of 4 per unit, CT, the distance OT is 8. The line TD is also 8 and half of it, TI, is 4. Then the price after the tax, OI, is 12, which is more by 2 than before the tax of 4 was imposed.

Let it be noted—whoever will can make the test—that our conclusion follows with equal certainty whether demand is very elastic (the demand line being then nearly horizontal) or very inelastic (the demand line being nearly vertical). It is essential only that demand should be regular—should change by a constant amount with each unit change in price—that the demand curve should be a straight line. If the demand line, beginning at its intersection with the cost line, rises almost vertically and intersects the OY line at a much higher point, the price of highest return will be much higher to begin with; but it will still be true that the price will tend to rise, after the tax, by one-half of the tax. It is incorrect to say, therefore, as does at least one writer (H. C. Adams, *Finance*, New York—Holt—, 1899, p. 395) that such a tax will gravitate towards the producer or the consumer “according as the demand for the commodity in question is an elastic or an inelastic demand.” The elasticity or inelasticity of demand, as such, has nothing to do with the matter. But whether demand becomes, when price rises beyond a certain point, more elastic or less so, may have considerable significance. If, for instance, the demand curve bends sharply enough to the left, at H (see figure), it is obvious that a tax on output will not cause the monopoly to raise its price by half the tax, or, perhaps, at all, because such a price rise will so sharply decrease sales. If, on the other hand, the demand line after passing to the left of and above H, turns upward (but not enough to make the price of highest return in the absence of a tax higher than in the case of

as indicated in the previous section,<sup>1</sup> cause no rise of price at all. And if, above the price of \$14, demand should become more inelastic—but not sufficiently so to make the price higher to begin with—the tax might cause a rise of price by more than half or, even, by more than the entire tax.

### § 3

#### *Monopoly and Increasing Cost*

Industries of so-called diminishing cost may be, as economists have often asserted, the ones which must inevitably and perhaps desirably, tend towards monopoly; but monopoly may be established, through control of sources of production or otherwise, in industries of entirely different character, e.g., in industries of constant or even of increasing cost. One case would be that of a monopoly producing coal or iron ore from mines varying in richness. The cost per ton would be low from the good mines and high from the poor ones. A given amount of labor and equipment will produce more tons from the better

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the original demand line), i.e., if demand becomes more inelastic with price rises beyond OF, then the price is likely to rise more because of the tax than if the elasticity of demand is constant. And it may, as was shown in an earlier section (Sec. 1, of this Chapter), rise by more than the tax.

<sup>1</sup> § 1 of this chapter.



mines than from the poorer ones. If but a limited number of tons is to be sold, the better mines only will be worked and the cost per ton will be low; if more is to be sold, the poorer mines may have to be worked and the cost per ton of the additional output will be high. If the price per ton is high enough so that there is a net monopoly profit even on the coal produced from these poorer mines, then there will be an additional surplus—a rent—from the better mines. Likewise, if the better mines, though worked somewhat intensively, nevertheless yield a monopoly profit—a return in excess of the ordinary competitive interest on capital and remuneration for marginal effort—on the marginal tons produced from them, these mines clearly yield an additional profit or rental surplus on the non-marginal tons.<sup>1</sup>

<sup>1</sup> A somewhat similar situation might conceivably exist if the monopoly, for every increase of its business, had to pay a progressively higher rate of wages so as to draw from other lines employees progressively more difficult to get. Such a condition, like the necessity of resorting to poorer mines, would mean that for every unit increase of business, the additional cost would be higher. If the price of the goods yielded a monopoly profit—something in excess of cost—on the marginal units, the same price would certainly yield a greater return on the non-marginal units. Such an excess or surplus return over cost is not entirely analogous to land rent, since it is not a yield of land or other physical property. It is, indeed, itself a special part of the yield of monopoly, although the reader should, for the purposes of our discussion of incidence, regard it as included in rent. Such a yield could not be received—at least in any corresponding degree—by managers of a competitive industry, for in a competitive industry

## § 4

*The Incidence of a Tax on the Output of a Monopoly Operating under Conditions of Increasing Cost*

In order to compare the effect of a tax on monopoly output under conditions of increasing cost with the

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no one concern would probably hire enough employees so that the wages per employee for the work done would be appreciably different than if fewer were employed. And, indeed, such a difference would perhaps be unlikely enough even in the case of a monopoly. If there were no such difference, this peculiar, rent-like element in the profits of a monopoly would be absent.

So far as it might be true that successive increments of labor hired by a monopoly involve increasing cost per unit of labor, the same thing might be true of successive units of (say) land rented. But the surplus received over rent paid on part of the land is not land rent as such. To illustrate, suppose pieces of land A, B, C, D, E, and F of equal utility. Suppose, also, that by the use of each additional tract the monopoly can add \$1,000 to its output. It can lease land A for \$300 and after paying \$200 in wages and interest, secure a net return from the use of this land, of \$500. But the other pieces of land have such alternative uses that they cannot be obtained for a \$300 rent. Thus, to get the use of land B may require a rent of \$400. Then if the monopoly hires A for \$300, taking advantage of the fact that it has a monopoly in its business and that land A cannot be used for other purposes, while it pays a rent of \$400 for B and pays or allows \$200 for labor and interest on equipment and improvement employed and used on each tract, its net return from both will be \$900, i.e., \$500 from A and \$400 from B. From C the net return may be still smaller, and so on. If a monopoly profit is made on F, an extra return is made on A, B, C, D, and E, which is really the rent that the owners of these tracts would receive if the business for which they could be best used was a competitive one and if, therefore, bidding for the land gave A, B, C, etc., the same rent as F. A monopoly, supposing it to lease the premises it uses, might thus

effect of the same tax under conditions of constant cost,<sup>1</sup> we shall assume two cases alike in all respects except that in one production is under increasing and in the other under constant cost. In both, production is by a monopoly; in both, the conditions of demand

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keep for itself rent which would otherwise go to some of these owners. And, in a similar way, it might keep for itself wages which, under competitive conditions, would go to some of its employees (those who would do this work at low wages rather than do any other kind of work).

But even if the owners of land A, B, C, D, etc., were able to get the rent which the monopoly has to pay to F, we would still have a case of increasing cost. If, although able to hire tract A alone for \$300 rent, the monopoly has to pay \$400 each for tract A and B in case it needs both, then to hire B costs it \$400 plus an extra \$100 to A, or \$500. This makes a cost (including wages and interest, \$200) of \$700 for the \$1,000 additional output. Likewise if to lease C at \$500 will add another \$100 to the rent required for A and B, then the cost of the \$1,000 produced on C is \$700 plus \$200 (wages and interest) and the monopoly profit only \$100. We can, then, assuming only tracts A, B, and C to be used, regard \$900 as the marginal cost, \$700 as the cost of the \$1,000 worth of product which would be marginal if only A and B were used, and \$500 as the cost of the \$1,000 worth of goods produced on A. The net monopoly return is, therefore, \$100 plus \$300 plus \$500. Of this, \$300 (\$100 on each \$1,000) is monopoly profit proper, and \$600 is an additional rent-like income, though not rent in the strict sense.

Similarly, let us now suppose that a monopoly, by doing a large business, finds itself paying somewhat more each to nearly all of

<sup>1</sup>For a mathematical study of the comparative incidence of taxes on goods produced by a monopoly under conditions of constant, increasing and decreasing cost, see article by F. Y. Edgeworth, entitled "Professor Seligman on the Mathematical Method in Political Economy," in the *Economic Journal*, Vol. IX, 1899, pp. 286-315, especially pp. 293-298.

are the same; in both, the number of units of output is the same; in both, the marginal costs of production are the same. But in one case this marginal cost is a constant cost and in the other the cost is less if fewer units are produced and greater if more are produced. In illustrating these cases with hypothetical figures, we can approach the problem most simply by supposing demand to vary by equal amounts with equal price changes. For we have already seen<sup>1</sup> that with such a regularly varying demand and producing

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its employees—in order to get the marginal ones into its field—than it would have to pay for fewer. The cost of an extra \$1,000 worth of product would then have to include not only the wages of the extra labor needed to produce it but also the additional wages paid to labor which, if less labor were wanted, would be got at a lower rate of pay. If, therefore, the last \$1,000 worth of goods produced pays a monopoly profit, there would be an additional surplus, analogous to rent, on the rest.

If the monopolist could tell what land and what labor might be obtained at lower rates than the rates necessary to secure the land and labor having relatively the best alternative opportunities, then individual bargaining would prove most profitable in dealing with both landowners and laborers. In that case the monopolist, by virtue of being a monopolist, would gain at the expense of both landowners and laborers. But if the monopolist does not know which laborers (or which land) are marginal in the work and which are not, and, to do a large business and secure the incident large force of employees, has to offer, more or less publicly, a higher rate of pay than if smaller business were done, then no such gain is securable and the cost of the marginal unit of output must be regarded as including the *additional* wages (and rent) paid to the employees (and landowners) that would be hired even if output were smaller. But in either case we have conditions of increasing cost.

<sup>1</sup> § 2 of this Chapter (IV).

under conditions of constant cost, a monopoly tends to raise the price of its taxed goods by half the amount of the tax. If, therefore, we find that, in the case of increasing cost, a monopoly tends to raise its price by less than half the tax, we can conclude with certainty that, given a regularly varying demand, a tax on monopoly output will tend to a less rise of price when goods are produced under increasing cost than when they are produced under constant cost. And we can be fairly certain even without making a test—which, however, can be easily made—that the same conclusion applies where demand varies irregularly. Let us first repeat from an earlier section <sup>1</sup> the following table representing conditions of constant cost:

<i>Price</i>	<i>Sales</i>	<i>Expense per sale</i>	<i>Profit per sale</i>	<i>Profits</i>
\$20	0	—	—	\$ 0
19	20	\$8	\$11	220
18	40	8	10	400
17	60	8	9	540
16	80	8	8	640
15	100	8	7	700
14	120	8	6	720
13	140	8	5	700
12	160	8	4	640
11	180	8	3	540
10	200	8	2	400
9	220	8	1	220
8	240	8	0	0

<sup>1</sup> § 2 of this Chapter (IV).

The price of highest net return is \$14 and, as we know, a tax on output will cause a rise of price amounting to half the tax. If we now consider a case of increasing cost where demand is just the same at each price and where at the price of \$14 (at which, with a constant cost of \$8, the yield is the highest) the marginal cost is \$8, then we shall find that in the absence of a tax, the price of highest return is the same, \$14, but that a tax on output causes a price rise of less than half the tax. Following are figures for such a case:

<i>Price</i>	<i>Sales</i>	<i>Expense per sale (at margin)</i>	<i>Average Expense per sale</i>	<i>Profit per sale</i>	<i>Profits</i>
\$20	0	—	—	—	\$ 0
19	20	\$3	\$3	\$16	320
18	40	4	3.5	14.5	580
17	60	5	4	13	780
16	80	6	4.5	11.5	920
15	100	7	5	10	1000
14	120	8	5.5	8.5	1020
13	140	9	6	7	980
12	160	10	6.5	5.5	880
11	180	11	7	4	720
10	200	12	7.5	2.5	500
9	220	13	8	1	220
8	240	14	8.5	0.5	120

Let us now see whether, as in our case of constant



cost, a tax of \$8 per unit of output or per sale, will cause the price of highest net return to be just \$4 higher, or whether price will rise less than this. A tax per unit of \$8 would mean a subtraction from the profits, at each possible price, of \$8 multiplied by the number of sales at that price. The net figures would then be:

<i>Price</i>	<i>Sales</i>	<i>Expense per sale (at margin)</i>	<i>Average Expense per sale</i>	<i>Average Profit per sale</i>	<i>Profits</i>
\$20	0	—	—	—	\$ 0
19	20	\$11	\$11	\$8	160
18	40	12	11.5	6.5	260
17	60	13	12	5	300
16	80	14	12.5	3.5	280
15	100	15	13	2	200
14	120	16	13.5	0.5	60
13	140	17	14	—1	— 140
12	160	18	14.5	—2.5	— 400
11	180	19	15	—4	— 720
10	200	20	15.5	—5.5	—1100
9	220	21	16	—7	—1540
8	240	22	16.5	—8.5	—2040

The price of highest return is now \$17. (No fractional prices are included in our table. Seventeen dollars is the price in even dollars giving the highest return.) The tax has brought it about that the price

of highest net return is higher than before but higher by less than half of the tax.<sup>1</sup>

To express, now, the whole matter in words, we may

<sup>1</sup> The fact that a tax on output tends to make a monopoly raise its price less if it is operated under increasing cost can be shown diagrammatically. In the chart below (figure 5),  $DD'$  is the demand line,  $CC'$  is the line of constant cost and  $MN$  is the line of increasing cost.

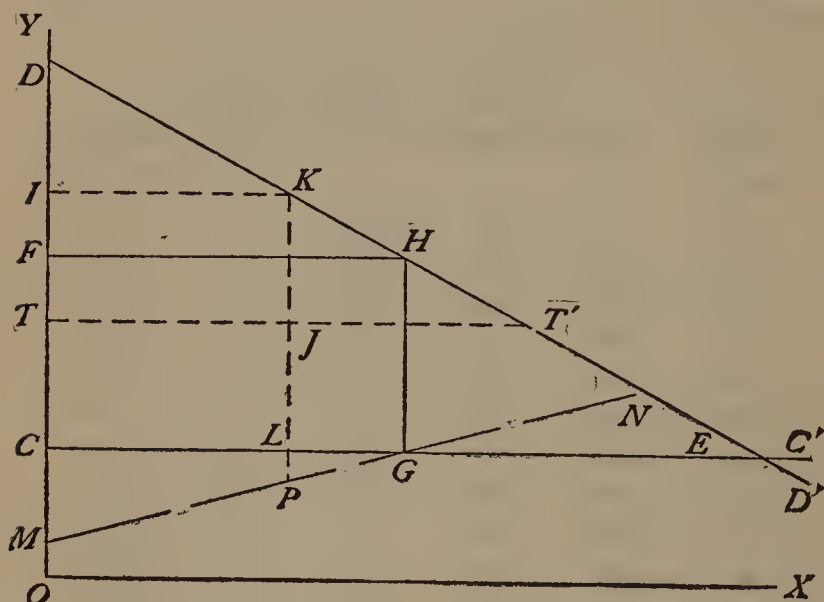


FIGURE 5.

The point on  $MN$  where the vertical line should be erected to construct the area of largest monopoly profits in the case of increasing cost is that point on  $MN$  through which runs a hypothetical line of constant cost (a line parallel to the base), which line is bisected (between  $OY$  and  $DD'$ ) by the line  $MN$  at the point of intersection. To find this point and construct the line  $CC'$ , extend line  $DD'$  to its intersection with the base, then bisect the base and draw a straight line from  $Y$  to the middle of the base,  $OX$ , through  $MN$ .

say that, in the case of increasing cost, all the units of output except the marginal ones cost less and so yield more in the way of net returns. Hence, the

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The price of highest net return is OF and the area of largest monopoly profit is CFHG plus, in the case of increasing cost, the area CGM representing the extra rent or rent-like return on the non-marginal units. A tax of the height CT, making the cost per unit in the case of constant cost, OT, will raise the price, in that case, to OI. For while the gain from raising the price, in increased net returns per sale, is the same as it would be if the price were raised in the absence of a tax, the loss in net returns on the sales thus lost is not as great as if there were no tax, since with the decrease of sales goes always a decrease of tax. The gain from each increment rise of price exceeds the loss until the price has risen by half the amount of the tax. The gain from each increment price rise is the amount of rise in price times the sales at the new price and is measured by a rectangle above FH, the height of which is equal to the increment price rise. The loss is the former net returns per sale times the number of sales lost and is measured by a rectangle constructed along and to the left of the line GH, the width of which is equal to the number of sales lost. It is or should be obvious that the gain from raising the price (the rectangle erected along and above FH) is the same in the case of increasing cost as it is in the case of constant cost. But the loss from so doing is greater in the case of increasing cost, since it includes, besides a rectangle to the left of the line GH, a triangle between the lines CG and MG. In other words, the monopoly which produces under conditions of increasing cost finds that a loss of sales involves a larger loss of net returns than in the case of a monopoly which produces under conditions of constant cost; for the cost of production to the monopoly producing under increasing cost—except the cost at the margin—is less and, therefore, at any given price the gain is greater. By raising its price such a monopoly cuts off some of this rent or rent-like gain between CG and MG, as well as the rectangle to the left of GH. Hence such a monopoly sooner reaches the point where a further increase of its price, because of the tax, is not worth while.

gain from raising the price, when a tax is levied, is sooner offset by the loss from cutting off some of the former business.

## § 5

### *Production by a Monopoly under Conditions of Diminishing Cost. Incidence of Output Tax in Short Run*

Let us consider, now, the case of a tax on goods produced by a monopoly under conditions of diminishing cost. In discussing production by a monopoly under conditions of diminishing cost, and the probable effect of a tax upon it in proportion to output, we need to have in mind a very definite notion of what we mean by cost. As in the case of increasing cost we shall have in mind not average cost per unit output but marginal cost. Thus, suppose a concern which may produce ten thousand, twenty thousand, thirty thousand, or forty thousand units of commodity. If 10,000 units are produced the cost is \$5 per unit or \$50,000. In case 20,000 units are produced, equipment can be more effectively utilized and the total cost of a doubled business may be \$90,000 or an average cost of \$4.50 per unit output. But the *additional* cost of the second 10,000 units is only \$40,000 or an average of \$4 per unit. The additional cost of a

third 10,000 units—assuming the same plant and methods to be used—would probably be as great as for the second, viz., \$4 per unit. For the upkeep of the plant and interest on the investment—if provided for by the first 10,000 units—is no more to be reckoned as an additional expense of the second 10,000 than of the third. Average cost per unit might continue to decline until the point of complete utilization of plant was reached, while yet marginal cost declined no further after the second 10,000 produced. Indeed, if one reckoned the interest on investment and the expense of upkeep of plant as imposed by the first unit of output, then there might be not only no decreasing marginal cost after the second 10,000 but there might be not even decreasing marginal cost after the second *individual* unit of output.

If with increasing output the marginal unit cost does not decrease, then with decreasing output the marginal unit cost would not increase. We would therefore have, so far as particular operating costs were concerned (as distinguished from so-called “overhead” costs—fixed and general costs), a monopoly operated under conditions of constant or nearly constant cost. This, as we shall shortly see, would not be the condition in the long run. But it would be the condition during the life of the monopoly’s plant, assuming the adequacy of this plant to turn out the

goods demanded, at the price fixed.<sup>1</sup> In the long run, the cost of producing goods includes the ordinary rate of return on capital investment. But in the short run, when a plant adequate to supply a given article is already in existence, interest on investment is not a determining factor in fixing a price. The monopolistic industry will endeavor, if untrammelled by regulation or fear of regulation, to charge the most profitable price. If there is a fixed "overhead" for interest on capital obtained through the sale of bonds or otherwise, the monopolistic industry will charge the same price of largest profit. Thus only can it have the largest amount left for dividends after paying the fixed charges—or the smallest deficit. If, perchance, it should fail to meet this interest and its creditors should foreclose and get possession of its plant, they also would charge the price yielding the highest net returns above costs of operation, and in doing so they would have no occasion to at all consider interest on investment. So, again, if there are certain general expenses of upkeep of the plant, expenses not dependent on the amount of business done—e.g., renewal of railroad ties due to rotting from weather conditions, etc.—these expenses also would not be matters for consideration in fixing a rate, charge or price.

<sup>1</sup> And assuming that the plant has no other profitable use and that it does not become worth while to sell it as junk rather than operate.



The only qualification necessary to the foregoing statement is that in case the least unprofitable price possible would not yield enough to cover such general expenses, and this were expected to be a continuing condition, then abandonment of the business and the plant would be preferable to continued operation. But the fact—should it be a fact—that the monopoly made less than enough to pay interest on its debt, though this would lead to bankruptcy, would not cause abandonment of production.

Suppose, now, the levy of a tax on the output of a monopoly operated under the above conditions. Since—except for the minor qualification above stated—the managers of the monopoly would have reason to consider only the particular operating costs, i.e., the costs specifically imposed by each unit of business done, and since these costs are assumed to be constant or nearly so, the tax would cause just the same amount of price rise as if all costs except the particular operating costs were non-existent. As a short-run proposition the price-fixing conditions are the same as if cost were constant or nearly so. Hence the incidence of a tax on output will tend to be the same.

But if we are considering the long-run conditions of monopoly production, and the long-run effects of a tax on monopoly output, then we must allow for

the wearing out or the obsolescence of machinery and plant and for the consequent necessity of constructing anew the necessary capital for producing the monopolized article or service. If, because of a tax on output, the price is to be higher, the sales are likely to be smaller. Then production will be on a smaller scale. If so, the most economical method of production is likely to be different than if production is on a large scale. Thus, if only one unit were to be produced, a very different method of production would probably be employed, e.g., production would be "by hand" and the cost would not include interest on a tremendous investment. It is, perhaps, more reasonable to reckon a cost per unit of producing one, one thousand or ten thousand units on the assumption that the kind of plant and the method of production are the most economical for the volume of production aimed at. Even, therefore, although beyond (say) 20,000 units there is no decrease of marginal cost with the existing plant and methods of production, marginal cost may yet decrease if an increased output makes possible the adoption of more effective methods of production. Thus, if an output of 30,000 can be planned for, it may be possible so to plan equipment and methods as to make the total cost \$120,000. If the cost of 10,000 units is \$50,000 and of 20,000 is \$90,000, then the *additional* cost of the last (the third)

10,000 is \$30,000 or \$3 per unit. If less is produced the marginal cost is greater. If more is to be produced the marginal cost may be less.

Beyond some point or other it is probable that marginal cost would cease to decline. But this point may not be reached except with a greater output than the circumstances make seem desirable to the monopolistic concern. When this point is reached—if it is reached—we have again the conditions of constant or of increasing cost, at least so far as the incidence of taxation is concerned.

## § 6

### *The Long-Run Incidence of a Tax on a Commodity Produced by a Monopoly under Conditions of Diminishing Cost*

We shall find that a tax on a commodity produced by a monopoly is more likely to cause a rise or will cause more of a rise in prices under conditions of decreasing than under conditions of constant or of increasing cost. To prove that a commodity tax is more likely to raise price or is likely to raise it farther under conditions of decreasing than under conditions of constant cost when production is by a monopoly, let us use illustrative figures as we did when comparing constant with increasing cost. Let us take demand, as in our il-

illustrations for constant and increasing cost, to be perfectly regular, i.e., to increase by a constant amount with every unit fall in price. Then the price of highest net return before the tax will be the same as it would be under constant cost if this cost were the same as the marginal cost at the point where the price is fixed. Thus, in the following set of illustrative figures the price of highest net return is \$14, at a marginal unit cost of \$8, which is the same as the price fixed, under identical conditions of demand, at a constant cost of \$8 per unit output: <sup>1</sup>

<i>Price</i>	<i>Sales</i>	<i>Expense per sale (at margin)</i>	<i>Average Expense per sale</i>	<i>Average Profit per sale</i>	<i>Profits</i>
\$20	0	—	—	—	\$ 0
19	20	\$10.5	\$10.5	\$8.50	170
18	40	10	10.25	7.75	310
17	60	9.5	10	7	420
16	80	9	9.75	6.25	500
15	100	8.5	9.5	5.50	550
14	120	8	9.25	4.75	570
13	140	7.5	9	4	560
12	160	7	8.75	3.25	520
11	180	6.5	8.50	2.50	450
10	200	6	8.25	1.75	360
9	220	5.5	8	1	280
8	240	5	7.75	0.25	210

<sup>1</sup> See Section 2 of this Chapter (IV).

With like figures for demand at each price and with a constant cost of \$8 per unit, we found that a tax of \$8 per unit output made the price of highest net return higher by \$4 or half the amount of the tax.<sup>1</sup> Under increasing cost we found that the price rose less.<sup>2</sup> Now, under decreasing cost, we shall find the price to rise *more*. Thus, with a tax of \$8 per unit output, the figures for "profit per sale" will be less, in each case, by \$8 and the figures in the column "profits" will be correspondingly affected:

<i>Price</i>	<i>Sales</i>	<i>Expense per sale (at margin)</i>	<i>Average Expense per sale</i>	<i>Average Profit per sale</i>	<i>Profits</i>
\$20	0	—	—	—	\$ 0
19	20	\$18.50	\$18.50	\$0.50	10
18	40	18	18.25	—0.25	—10
17	60	17.50	18	—1	—60
16	80	17	17.75	—1.75	—140
15	100	16.50	17.50	—2.50	—250
14	120	16	17.25	—3.25	—390
13	140	15.50	17	—4	—360
12	160	15	16.75	—4.75	—760
11	180	14.50	16.50	—5.50	—990
10	200	14	16.25	—6.25	—1250
9	220	13.50	16	—7	—1540
8	240	13	15.75	—7.75	—1860

<sup>1</sup> See Section 2 of this Chapter (IV).

<sup>2</sup> See Section 4 of this Chapter (IV).

This means that the profits are now highest at a price of \$19.<sup>1</sup> In other words, a tax of \$8 per unit of output causes a price rise of over \$4, or more than half the tax. It, therefore, causes a price rise more than an exactly equal tax causes under conditions of constant cost and precisely similar demand.<sup>2</sup>

<sup>1</sup> We are here considering price changes only of a dollar at a time and are not noticing possible profits at intermediate points.

<sup>2</sup> Consider now the case of decreasing cost with the use of diagram. As before, so in this figure (figure 6),  $DD'$  is the demand line. The line  $CC'$  represents constant cost. The line  $NM$

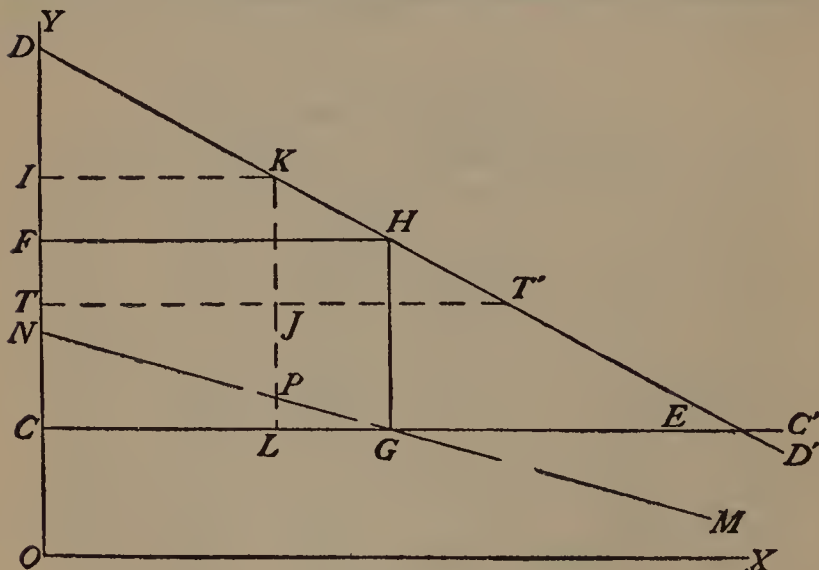


FIGURE 6.

will represent decreasing cost. Construct, as in figure 5, by running straight line from  $Y$  through middle of base (between  $O$  and intersection of base with  $DD'$ ). Where this line crosses  $NM$ , draw  $CC'$  parallel to base. The price  $CF$  at which returns to the monopoly are largest (area  $CFHG$ ) under constant cost, in the absence of a tax, is also the price at which returns are the largest



Attention should again be called to the fact that the exact per cent. of price rise compared with tax—one-half under conditions of constant cost, less than one-half under conditions of increasing cost, and more than one-half under diminishing cost—is dependent upon the assumption of a demand changing at a regu-

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with cost declining along the line NM. A higher price would, under conditions of constant cost, cut off a larger area along and to the left of the line GH than it would add along and above the line FH. (As the price is raised by successive increments, the amounts cut off become successively greater, for the distance between CC' and DD' becomes greater as we go to the left of GH. But the amounts added between OY and DD' become progressively smaller as we go above FH.) The same is true if cost decreases along the line NM. For although the amount of net return cut off by a rise in price is not quite so great (by a small triangle, to the left of G between NG and CG) as in the case of constant cost, yet unless the line NM slants downward enough more rapidly than the line DD' to make the triangle above LG as large as the rectangle of which KH is the diagonal, more is cut off than is added. (If the distance GH is equal to the distance FH, the above statement is perfectly obvious. If the distance GH is half the distance FH, then the width cut off along GH by a rise in price will be twice the height added above FH and the conclusion that to raise or lower price from OF will not pay is equally demonstrable. And similarly for the other proportions.) So, also, under constant cost, a lower price would cut off more along and below the line FH than it would add along and to the right of the line GH; and this would be true, although the gain would be slightly greater (by a small triangle to the right of G, between GC' and GM) and the net loss therefore less, in the case of decreasing cost. (But unless the line NM declines considerably faster than the line DD'—i.e., unless it declines as steeply as a line drawn from the apex of the triangle to the middle of the base—the area added along and to the right of the line GH, even with the triangle between GC' and GM included, will be less than

lar rate with changes of price. But the conclusion that less of a tax is shifted by a monopoly if production is under conditions of increasing than if under conditions of constant cost, and that more is shifted if production is under conditions of diminishing cost, would prove to be true under other conditions of demand. However, when demand becomes suddenly much more elastic above the price charged prior to the

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the area cut off along the line FH.) Suppose, now, a tax to be levied the amount of which per unit shall be measured by a narrow rectangle of the height CT, so that the tax on total output shall be that amount multiplied by the number of units of output, or a total measured by a rectangle of which the vertical distance is CT and the horizontal distance is CG or CL according to the amount of output. (The rectangle representing the tax will be CTJL in the case of constant cost, since the price will rise to OI and the sales or output will decline to CL). Then we shall see that price is likely to be raised more under conditions of decreasing than under conditions of constant cost. For, while the gain from an increase of price, as measured by a rectangle constructed along and above FH is the same whether cost is decreasing or constant, the loss in net returns in case some of the sales are cut off by the price rise (this loss being measured by an area along and to the left of the line GH) is less under decreasing than under constant cost by the area of the triangle formed to the left of G and between the constant cost line, CG, and the decreasing cost line NG. The price can be raised, therefore, in the case of decreasing cost, a larger amount after the tax before the gain from such increase no longer exceeds the loss. Of course, if, at a price at all above that which would be fixed under constant cost, the demand would absolutely cease (the demand line becoming horizontal), then the same price would be fixed under constant or decreasing cost. But the tendency is for a monopoly to raise its price more because of a tax on output, if it is producing under decreasing than if it is producing under constant cost.

tax, there might be no difference in the effect of the tax under conditions of constant, increasing and decreasing cost since any rise of price under any of these conditions might not be desirable for the monopoly.

Expressing the matter in words, we may say that a monopoly is more likely to raise its price or is likely to raise it farther because of a tax proportioned to output if it produces under conditions of decreasing than if it produces under conditions of constant cost. For by raising its price it gains as much on each unit of business still done as if it operated under conditions of constant cost; while its loss on the business cut off is less since the cost of this business (except for the marginal unit or units) is greater than in the case of constant cost.

The conclusions we have reached: that under conditions of constant cost and regular demand a tax on the output of a monopoly will cause a rise of price of half the tax; that if production is under conditions of increasing cost a tax on output will be likely to cause a less price rise than if cost is constant; that under conditions of decreasing cost price will be likely to rise more; that in any of these conditions of cost, the conditions of demand may be such as to negative any price rise because of the tax; and that price may rise by even more than the tax,—these are conclu-

sions which cannot be regarded as absolutely true. They are true to the extent that the proprietors of the monopoly concern so taxed persistently and intelligently and without government interference seek to secure the maximum monopoly profits or returns. In practice the managers of a monopolistic concern may not be able to estimate within wide limits how a given increase or decrease of price will affect their sales, and, therefore, their output, taxes and net profits. A tax on output may cause them to raise their price by more than or by less than the amount by which they would raise it if they knew what would be the demand at each price. And if monopoly is so regulated by government that it can charge no more than will yield the ordinary competitive return on actual investment in plant and equipment, while yet it could charge more without too great curtailment of demand, then a tax on output is likely to be shifted about as it would be under competitive conditions because the regulating government will not improbably feel compelled to allow a higher price out of which the tax may be paid.

Indeed, in the case of such monopolies, it is ordinarily taken for granted that the tax will be added to the prices or rates fixed by the regulating commission. Thus, as most people are aware, the war tax on railroad passenger and freight traffic was so

added to the regular charge. If such a tax were a permanent part of our revenue system and its addition to rates actually reduced traffic and so reduced net revenues, it is entirely possible that the Interstate Commerce Commission would consent to still further rate increases so as to permit "fair" or "reasonable" returns on investment.

Again, there are, in fact, various degrees of monopoly, so that, in many cases, it is not easy to tell whether the conditions affecting tax incidence are mainly those of monopoly or competition. What shall we say, for instance, of the tax on entertainments in towns and cities having one, two or three movie theaters?

In all cases we must beware of concluding either that a tax is not being shifted because it is included in a formal price charged the buying public or that it is shifted completely because a part of the price paid by the public for an article or service is earmarked as the tax. The formal price may be made higher because of a tax than it otherwise would be, or the apparent adding of a tax may be largely offset by a lower formal price than would be charged if it were not for the tax.

But, despite these various qualifications and uncertainties, the theory of incidence of a tax on monopoly output, like the theory of monopoly price, is worth while. By means of it we can form a better notion



of what are the possibilities and of what is likely to happen in any given case. Approximations to the complete account of a phenomenon are not to be dismissed as unimportant or as irrelevant because they are approximations and not an absolutely complete account. Rather are they to be added to or qualified as the problem in hand may require and so used as an aid to judgment. As a result of the foregoing discussion, we have reason to believe that, in general, a tax on monopoly output will be likely to raise prices to consumers, and that it may raise prices by more than the tax. Such a conclusion is not very precise but it is worth reaching.

## § 7

### *A Tax on Monopoly Net Profits*

A tax on the *net profits* of a monopoly *cannot be shifted at all*. A monopoly concern will naturally try so to fix the price of its product (or the prices of its products) as to get the largest net returns. And whatever price yields the largest net returns in the absence of any tax whatever will also yield the largest net returns if the tax is a lump sum or if it is some fixed per cent. of net gain. Thus, if the net profits of a monopoly after subtracting all costs are greater at a price of \$10 per unit output than at a price of



\$11, a tax of  $9/10$  of these net profits will still leave the monopoly concern more than if it raised the price of the product to \$11 and paid  $9/10$  of a smaller gain. For  $1/10$  of a larger sum is clearly more than  $1/10$  of a smaller. It may be indeed better policy to regulate the price, prices or charges of an industry naturally monopolistic than to let it get monopoly prices and then tax its net returns. But if a monopoly is to be free to fix what prices its owners please it will not, assuming intelligent action on the part of its owners or managers, fix higher prices if its net returns are taxed than if they were not.

The chances are that to allow a monopoly to charge high prices for its goods, when regulation of its price or prevention of monopoly control is feasible, in order that the state may tax the profits so permitted, will injure citizens more than it will benefit the state. Buyers of the monopoly-produced goods will have to pay higher prices by as much as the state gains. In addition to this, the higher prices will keep some from buying who would buy were the prices lower. These would-be buyers will suffer a loss of utility for which there is nowhere a balancing gain.

## § 8

*Summary*

In this chapter we have considered the incidence of taxes on monopoly according to output and of taxes on monopoly profits. We have seen that taxes on monopoly output might, according to various conceivable conditions of demand, cause the intelligently managed monopoly to raise its price for the taxed article by more than the tax, by less than the tax, or not at all. We have seen that, given constant cost and a demand changing by the same amount with each unit change in price, a tax of a given amount per unit output would make the price of highest net return higher by half the amount of the tax. We have seen, also, that a tax on monopoly output is likely to cause a less rise of price in case production is under conditions of increasing cost than if under constant cost, and a greater rise of price if production is carried on under conditions of diminishing cost. Finally, we have seen that a tax on the net gains of monopoly leaves the most profitable price just where it was before and so tends not to be at all shifted upon consumers. It may be possible, by regulating the rates or prices of industries which are best run as monopolies and by making monopolies in

other industries illegal, to keep rates and prices in general on a competitive level. If this suggested alternative is possible, then to allow monopolistically high rates and prices, out of which something goes to government as tax, is, in effect, to tax consumers, and to injure (in general) would-be consumers who forego consumption because of the high prices.

NOTE: It may be worth while to inquire whether a tax on monopoly in proportion to gross returns would affect price in like manner and degree as a tax on output. In a competitive industry if the producers (including all factors) are all marginal, a tax on output or on gross returns must be shifted entirely upon consumers. And under conditions of increasing cost part of the burden falls upon producers and part on consumers whether the tax is on gross output or on gross returns. In either case the new point (price) of equilibrium, after the tax, will be one such that the producing factors (land, labor and capital) which are just induced to remain in the business will get out of the price, after paying the tax, just enough to prevent change into some other business (or, in the case of marginal land, change from use to non-use) from seeming worth while. In the case of a competitive business, therefore, the problem of the incidence of a tax on gross returns is fundamentally no different from that of a tax on output.

But there is some ground for making a distinction in the case of a monopoly, and the conclusion appears to be that a tax on gross returns is likely to cause price to rise less than a tax on output. The general reasoning by which this conclusion is arrived at is certainly plausible and

should perhaps be convincing. It is based on a comparison between gross returns and gross output. An increased price will decrease demand and, therefore, appreciably curtail output. But gross returns are figured by multiplying gross output and price. And since the decline in output, in case there is an attempt to shift or partly shift a tax, is consequent on a rise in price, the product of output and price will not decrease in as rapid proportion as will physical output. It appears to follow that a tax in proportion to output is likely to cause a greater rise in price than a tax according to gross returns. For a tax according to output decreases as output decreases and a tax according to gross returns decreases only as gross returns decrease. And, therefore, a tax according to output is cut off to a larger extent by a rise of price which results in decreased output than is a tax according to gross returns. Nevertheless, the conclusion that a tax on gross returns will not ordinarily cause as great a rise in monopoly price as a tax on output cannot be made obvious by concrete illustration without considerable difficulty. For a tax on gross returns and a tax on output are not easily comparable on any common basis. Thus, consider the table which we have used in this chapter for the case of monopoly producing under conditions of constant cost and which illustrates the fixing of monopoly price at the point of largest monopoly gains:

<i>Price</i>	<i>Sales</i>	<i>Expense per sale</i>	<i>Profit per sale</i>	<i>Profits</i>
\$20	0	—	—	\$ 0
19	20	\$8	\$11	220
18	40	8	10	400

<i>Price</i>	<i>Sales</i>	<i>Expense per sale</i>	<i>Profit per sale</i>	<i>Profits</i>
17	60	8	9	540
16	80	8	8	640
15	100	8	7	700
14	120	8	6	720
13	140	8	5	700
12	160	8	4	640
11	180	8	3	540
10	200	8	2	400
9	220	8	1	220
8	240	8	0	0

In this table the price of largest profits is \$14. Under the peculiar conditions of demand and cost here illustrated we have found that a tax according to output makes the price of largest profits higher than before by just half the amount of the tax per unit. How shall we compare with this a tax levied according to gross returns? What point shall we take as our starting point for the purpose of comparison? Suppose we should take the price of \$14 (the price of highest return in the absence of a tax) as our base or our point of departure, and suppose we take as our tax on the gross returns at that price that amount which is equal to a tax of \$8 per unit output. At a price of \$14, there would be, according to our table, 120 sales. A tax of \$8 per sale would come to \$960. The gross returns would be \$14 (the price per sale) times 120 (the number of sales), or \$1680. A tax of \$960 is  $\frac{4}{7}$  of \$1680. Suppose, therefore, we reckon the tax on gross return which is to be compared with a tax of \$8 per unit output, as  $\frac{4}{7}$

of the gross returns at every possible price. The following table shows gross returns, tax, etc., at each price:

<i>Price</i>	<i>Gross Returns</i>	<i>Tax</i>	<i>Profits before Tax</i>	<i>Profits after Tax</i>
\$20	\$ 0	—	—	\$ 0
19	380	\$217 1/7	\$220	2 6/7
18	720	411 3/7	400	—11 3/7
17	1020	592 6/7	540	—52 6/7
16	1280	731 3/7	640	—91 3/7
15	1500	857 1/7	700	—157 1/7
14	1680	960	720	—240
13	1820	1040	700	—340
12	1920	1097 1/7	640	—457 1/7
11	1980	1131 3/7	540	—591 1/7
10	2000	1142 6/7	400	—742 6/7
9	1980	1131 3/7	220	—911 3/7
8	1920	1097 1/7	0	—1097 1/7

The price of highest net gain after the tax is here shown to be (taking the nearest integer) \$5 above the previous price in the case of a 4/7 tax on gross return, whereas it would have been only \$4 above in the case of an \$8 tax per unit output. The conclusion we would seem to be led to by this example is, therefore, directly opposite to that which we were led to in our general reasoning. (Had we compared a commodity or output tax of \$4 with a tax of 2/7 of gross returns—instead of \$8 and 4/7 respectively—our conclusion from general reasoning would have seemed to be upheld).

The trouble probably is that in the terms of our illustration we are not fairly comparing a tax on gross returns with a tax on output. For we are at the same time com-



paring a large tax with a small one. It is true that both taxes are the same at the price of \$14; but at a price of \$18, while the tax per unit of \$8 comes to an aggregate of \$320, at the same price a tax of  $4/7$  of gross returns comes to the much higher aggregate of \$411  $3/7$ . When, therefore, we are comparing a gross returns tax of  $4/7$  with a tax on output of \$8 per unit, to see whether the former tax will cause a price rise of more or less than the \$4 rise under the latter (under the conditions here given), we are really comparing two taxes one of which at or about the price or prices likely to be fixed is much higher than the other. To make our starting point where the tax of \$8 per unit and  $4/7$  of gross returns are equal, the price of largest profits before the tax, might be a fair and significant way of approaching the problem if the question were whether in one case or the other the price was more likely to be raised *at all*. But if the question is whether the price is likely to rise by \$4 or more or less, then it would seem more reasonable to compare the effects of taxes which are the same at some pivotal price near the price or prices likely to result because of the tax.

Such a pivotal price in the specific case in contemplation would be \$18, which is \$4 higher than the price which would be fixed in the absence of a tax. This price, \$18, is the price that would be brought about by a tax of \$8 on each sale or unit of output. We shall consider the tax on gross returns, with which comparison is to be made, to come to the same aggregate, \$320, at this price. Then the tax on gross returns is  $320/720$  or  $4/9$ . At a higher price a tax of  $4/9$  on the gross returns will come to more than a tax of \$8 per unit output and at a lower price, to less. Hence, the tax on gross returns will tend to cause a less rise of price than the tax on output:

<i>Price</i>	<i>Gross Returns</i>	<i>Tax</i>	<i>Profits before Tax</i>	<i>Profits after Tax</i>
\$20	\$ 0	\$ 0	\$ 0	\$ 0
19	380	168 $\frac{8}{9}$	220	51 $\frac{1}{9}$
18	720	320	400	80
17	1020	435 $\frac{1}{3}$	540	86 $\frac{2}{3}$
16	1280	568 $\frac{8}{9}$	640	71 $\frac{1}{9}$
15	1500	666 $\frac{2}{3}$	700	33 $\frac{1}{3}$
14	1680	746 $\frac{2}{3}$	720	—26 $\frac{2}{3}$
13	1820	808 $\frac{8}{9}$	700	—108 $\frac{8}{9}$
12	1920	855 $\frac{1}{3}$	640	—213 $\frac{1}{3}$
11	1980	880	540	—340
10	2000	880 $\frac{8}{9}$	400	—488 $\frac{8}{9}$
9	1980	880	220	—660
8	1920	853 $\frac{1}{3}$	000	—853 $\frac{1}{3}$

Here a tax of  $\frac{4}{9}$  on gross returns tends to make a price rise of but \$3 (to the nearest integer) or a less rise than a tax of \$8 per unit output. This is consistent with the conclusion to which we were led by general reasoning. (If we should take a tax on gross returns, of  $\frac{4}{9}$ , find what price the monopoly would fix after such a tax, and then find the tax per unit of output which would make the same aggregate tax at that price, and compare a  $\frac{4}{9}$  gross returns tax with such a tax on unit output, we should again see the tax on gross returns tending to a less rise of price than the tax on unit output.)

## CHAPTER V

### THE INCIDENCE OF TAXES ON LABOR INCOMES

#### § 1

#### *The Incidence of Taxes on Wages in General*

In considering the incidence of taxes on labor incomes we may advantageously divide the problem into the following separate cases:

- 1.—Taxes on wages in general.
- 2.—Taxes on all wages in any one line.
- 3.—Taxes on the surplus labor incomes above some fixed return, of the more successful workers (including persons in the professions).

But before considering the incidence of taxes on wages-in-general, it will be well to make clear that there are such taxes. In the countries with which readers of this book are familiar there are not, it is true, taxes levied directly on wages as such. In some jurisdictions there are poll taxes levied on each adult man or each adult person, and these taxes are a direct subtraction from the incomes of wage-earners.

But in nearly all jurisdictions there are taxes on commodities which, as we have seen, are shifted in large part upon consumers (sometimes, also, are put back upon producers), and which, therefore, are paid, in considerable degree, by wage-earners. So now, in discussing the ultimate incidence of a tax on wage-earners, we shall also be discussing the problem whether that part of a tax on commodities which falls upon labor incomes, can be shifted any further. In other words, we have to reopen for possible qualifications of our conclusion, the case of taxes on commodities. For although such taxes may seem to be shifted, in large part, upon consumers, in the first instance, it is possible that in the long run some or all of the consumers (in our present problem, the wage-earners) will find the burden again shifted upon the shoulders of some other class or classes.

The long-run incidence of a tax which is imposed directly on labor—or which is so levied that it falls indirectly upon the earnings of all labor—depends upon its effect on population. Suppose a tax to be levied which takes one-fifth of all labor incomes. The remaining four-fifths may or may not provide enough to enable workers to maintain themselves and reproduce an equivalent population in the next generation. Even if it is enough so that they can reproduce an equivalent population in the next generation, it may

not be enough so that they will do so. For they may have standards of comfort such that they will be unwilling to have as many children if their incomes are reduced as they might otherwise have. But even if the tax does not actually make the population smaller in the next generation than in this, it may make the population smaller in the next generation than it otherwise would be in that generation. Still again, the effect of a tax falling upon wages and so lowering the average of comfort enjoyed by workers in the country levying the tax might be to diminish immigration and so cause population in that country to be less than it otherwise would be. If the tax operates in any of these ways to diminish population and so to make the supply of labor less, it is likely to make wages higher—not necessarily higher than they now are but higher because of the tax than they would be if the tax were not levied.

There is, of course, no intention to assert that a tax on the incomes of labor must decrease the well-being of wage-earners and so affect population. For the taxes collected may be so expended by government as to further the welfare of wage-earners. The conclusion remains true, however, that the tax makes labor incomes lower than they would be if the funds were raised from some other class or classes than wage-earners, and that, if the funds raised are ex-

pended so as not to benefit wage-earners, then the tax is a real deduction from labor incomes. Hence it is worth inquiring what effects such a tax might possibly have on population and therefore on future wages.

But that wages would be higher with a smaller population than with a larger one may not be obvious. Can  $9/10$  of a hundred million people produce more than  $9/10$  as much as a hundred million people can produce? And if not, can a decrease of population make wages higher? In order to reach a conclusion on this topic it is necessary to advert to the law of diminishing returns. If the number of workers on a given area and with a given capital equipment is too greatly increased, the per capita production is decreased. Saving and, therefore, the addition of new equipment may or may not keep pace with increasing population. But whether it does or does not, natural resources—land—do not. As these natural resources—or this land area—come to be used more and more intensively, the total volume of wealth produced increases, but the production per person decreases. Additional workers, beyond a certain point, make smaller and smaller additions to product. The advantage of having more workers in a country where the best land is all in use and is intensively cultivated, where the best commercial, industrial and other



sites are already occupied and thoroughly used, is slight. They must either cause to be used more intensively land or land and equipment already almost completely exploited, or they must devote themselves to the exploitation of poorer sites and soils previously unused. For either of such activities their services have relatively little value and the wages they can command are relatively small. Assuming general intelligence and civilization to be equal, the countries not so much overpopulated, e.g., the United States and Canada, have higher wage standards than the more crowded countries such as Belgium, Holland, Italy, Germany, and England. The amount which any wage-earner can add to what would be the product without him, i.e., his marginal product, is larger, and the demand for his services is therefore great enough to assure him of higher wages. If the population is doubled, the additional persons may be, as workers, as good as or as efficient as the others; but, with no increase of area or resources, the product per person and, hence, wages, may have to decrease. If, then, a tax on wages does operate to make population smaller than it otherwise would be, it is likely to make the marginal product of labor somewhat larger and wages higher.

The owners of capital might, then, possibly, find their interest return smaller. But if the reduction of

interest tended to decrease the volume of capital and so to raise interest, at least the owners of land would find their incomes smaller. The poorer land would not be used at all. The better land would be, relative to population, more ample than before. Although the per capita production might, therefore, be greater, the rent of land would be smaller. Tenants, because of less competition, would pay less rent. Employing landowners, hiring fewer laborers at larger wages, would have less remaining to them out of the product. A tax on labor incomes may, therefore, by decreasing population, eventually not only prevent the continued exploitation of poor natural opportunities with the consequent small incomes to the labor exploiting them, but may also decrease the demand for the better resources and sites, thus reducing land rent.

This is what the Physiocrats insisted would be a necessary result of taxing wages. Only the rent of land, they said, was an income "disposable" by the state. Wages were a necessary means of subsistence, interest a necessary stimulus to saving. The rent of land was alone a surplus or net product (*produit net*).<sup>1</sup> Nevertheless, we cannot with certainty reach the same conclusion. For the conclusion depends upon the

<sup>1</sup> A good exposition of physiocratic theory is to be found in Turgot's *Reflections on the Origin and Distribution of Riches*, translated by W. J. Ashley in *Economic Classics*, New York (Macmillan), 1898.

hypothesis that a tax on labor will so increase the death rate or so decrease the birth rate as to make population in a later generation smaller than it would be if there were no tax. And it is at least conceivable that no such effect would be produced. Wages might be high enough to begin with so that to tax them would still leave enough for comfortable subsistence; so preventing any increase in the death rate. Likewise it is possible that the diminished incomes would cause other economies rather than decrease of the birth rate. Indeed, it is conceivable that reduced incomes to wage-earners, so brought about, might lead to less education and intelligence, discouragement, recklessness and a higher birth rate than before. We can safely assert that a tax on wages *may* tend in the direction of smaller population later and may, therefore, be more or less shifted, in time, upon land-owners. But we cannot assert that this *must* be the case.

## § 2

### *The Incidence of Taxes on all Wages in any One Line*

Let us now consider what effect or effects may be produced by a tax on all wages in any given line or lines but not on wages in general. Thus, suppose a tax on all bricklayers of one-third their incomes which

was not imposed on laborers of other kinds. Clearly, the wages of bricklayers must rise until they were about as high, relatively to wages in other lines, as before. The resulting new equilibrium would be brought about partly through a decrease in the number of bricklayers. The number must decrease to such a point that the remainder could command higher wages than before. This means that a larger number of persons must be employed in other occupations and the wages received in these other occupations would tend to fall slightly. But such an effect of reduction of wages would be spread over so many lines as to be hardly appreciable in any one. A tax on wages in any one line tends, therefore, to be distributed over wages in general, leaving them in about the same relation to each other as before. Whether, then, the kind of tax under discussion is shifted upon any other class than wage-earners, e.g., landowners, depends upon whether the burden, so distributed among wage-earners, affects population in succeeding generations. Hence, at this point, our study of whether and how a tax on some wages is shifted coalesces with our study of whether and how a tax on all wages is shifted.

The proposition that a tax on some wages would indirectly affect all wage-earners in about equal degree requires some qualification. To do so the tax

must cause a redistribution of labor out of the taxed line and into other lines. But such a redistribution might be extremely slow. Especially would this be likely to be the case if the trade in question happened to be one requiring a high degree of specialized skill. Despite the tax it might then still yield more than unskilled labor and more than those trained in it could for some years get in any occupation of equal grade for which they might begin to prepare themselves. Unless the tax were very high indeed, nearly all of those in the taxed line would probably prefer to remain in it rather than change to lines in which they were relatively incompetent. The chances are that but few persons in a highly specialized trade would be marginal between this and others and so likely to change because of a moderate tax. Only after the lapse of years, during which a new generation was coming into the industrial structure, would the readjustment be complete. To the young, untrained in any special trade or profession, free to choose as those who have already committed themselves are not, such a tax would be an effective deterrent. In time, therefore, we might expect to find fewer persons acquiring the special kind of skill of the taxed trade and more persons entering other trades, until the pre-tax equilibrium was restored. Of course the existence of strong innate tastes and aptitudes on



the part of many persons in favor of the taxed trade would operate to prevent much of a readjustment even if the trade were especially taxed. But it is doubtful if there is any trade for which there are innate tastes or aptitudes strong enough and on the part of persons enough so that this is any considerable factor in the problem.

But suppose the tax on labor incomes to be imposed only on incomes of the more highly paid occupations, e.g., the professions. Would it then cause a redistribution of labor, even in the long run, into lines less well paid—requiring not skill of an equal grade but skill of a lower grade? It has been argued by some writers<sup>1</sup> that such a tax is likely not to be shifted. Here a categorical yes or no will not be attempted. Whether such a tax can be shifted upon labor in general, depends upon whether it would actually keep any appreciable number of persons out of the professions and like highly-paid occupations and force them into other lines. Whether it would do so or not depends upon whether fewer persons would go into the professions, etc., for somewhat lower relative returns than those received previous to the tax. It is conceivable that such a reduction in returns would

<sup>1</sup> John Stuart Mill, *Principles of Political Economy*, Book V, Chapter III, Sec. 4; cf. also Seligman, *The Shifting and Incidence of Taxation*, fourth edition (Columbia University Press), 1921, pp. 367, 368.



not at all diminish the number going into the professions, etc. For it is conceivable that the returns in the professions are, in the absence of such a tax, more than large enough to entice into them nearly all those whose circumstances make professional life a reasonably attainable ambition. If we suppose that the earnings of the professions are higher than the earnings of the trades or crafts and of common labor, by a great deal more than enough to pay interest on the additional investment, but that the numbers in the professions remain small because the securing of the necessary training is for those in the lower wage classes practically impossible; and if we suppose that those to whom it is possible would still go into the professions despite the tax; then we must conclude that the tax would simply take for public purposes a part of the earnings of those whose incomes were already unusually high. There would be no shifting at all or not any of importance. But it is not improbable that any considerable tax on the incomes of the exceptionally well-paid occupations would have some tendency to affect the numbers in those occupations and in others and so to be distributed over wages in general. Entrance to those well-paid occupations is by no means absolutely limited to the children of those already in them and of the propertied classes. There are others who struggle to and do get

into them because of the expectation of high incomes in them. And a reduction of such incomes through taxation might remove from many such the inducement to make the struggle and so decrease the number in the professions and raise professional incomes.

But what if the tax applies not to all incomes in the better paid occupations but only to the larger incomes in those occupations? In that case it might be argued that none would be dissuaded from entering one of those occupations since any person who might be in a position to do so would expect that no tax would be imposed upon him except as his income was larger than it could possibly be in the crafts or in common labor. The ordinary man would be unaffected by the tax, it might be argued, since the ordinary man could hardly hope, in almost any case, to get from his prospective profession an income large enough to be thus taxable. And the genius would still choose a profession, it might be argued, if he were at all able to do so, since the more common occupations would not offer scope for his ability. But the fact is that few can tell, in youth, how great their success may be. Each hopes to be among the fortunate few, and the possible chance which each feels that he has to win high success is undoubtedly the lure that induces many who at least are only moderately successful or not successful at all, to enter the

professions. It is not, then, altogether unreasonable to suppose that a considerable tax on the surplus earnings of the more successful in selected occupations would, in the long run, cause a readjustment of occupations and a distribution of the burden over all labor incomes—with, conceivably, some influence on population and so, ultimately, on land rent.

It is not to be denied, of course, that a tax resting on the crafts and upon common labor might, by diminishing incomes requisite for education, do more to prevent movement upward into the better-paid occupations than a tax on the latter. But as compared with a tax which does not rest upon labor at all, e.g., a tax on the economic rent of land, a tax even on only the surplus earnings of the more highly remunerated persons in the professions might in some degree diminish the number of persons entering the professions.

### § 3

#### *The Incidence of Taxes on Surplus or Unusually High Labor Incomes*

But suppose our tax to be levied on high labor incomes in general, without any regard to the occupations in which they are realized. Would such a tax have any effect in redistributing labor? That it would do so is perhaps somewhat doubtful, yet, on theo-

retical grounds, not impossible. For although such a tax does not in form distinguish among occupations, in fact it rests more heavily upon the occupations in which large financial success is possible than upon those which never by any chance yield more than a few thousand dollars a year. And it might so diminish the attraction of the highly-remunerated occupations, e.g., the professions, for many persons, as to have a real effect on the relative numbers in them. Some who would have entered medicine, engineering, or law might decide that clerical work, the crafts, or other so-called lower grades of labor would be more desirable.

Our contemporary system of income taxes is, in part, such a discriminatory tax on the larger labor incomes and, therefore, on the labor incomes of the more highly paid occupations. It is true, of course, that these income taxes apply to income from property as well as to income from labor. For our present purpose, however, we may consider them as a combination of two types of taxes, viz., taxes on property income and taxes on labor income. Indeed, we might consider them as a combination of three types of taxes, viz., taxes on land rent, taxes on the interest of capital, and taxes on the wages of labor. There is customarily an exemption from these taxes of a fixed annual amount. In the case of the income tax of Mis-

souri, \$2,000 of income per year of a married couple, plus \$200 more for each dependent child, is exempt. The Federal income tax makes these exemptions \$2,500 and \$400 respectively. And in the case of the Federal tax, the tax is progressive as the taxed income increases, the highest rate applying only to very large incomes. So far, therefore, as these contemporary income taxes are on the incomes of labor, they apply particularly to the *larger* labor incomes. Hence they apply particularly to incomes from the more highly paid occupations. That such taxation operates to diminish the number of persons preparing for such occupations, and so diminishes competition and raises the rate of remuneration in them, cannot be conclusively proved. Yet there is reason for suspecting some slight tendency in this direction.

But as compared with a tax on small labor earnings and large ones alike (instead of compared with no tax whatever on labor incomes) a tax on the larger labor incomes might not at all diminish the number in the professions. For it would at least not lessen the ability of the comparatively poor to enter or to put their children into the better paying occupations, while a tax on all labor incomes might do so.

## § 4

*Summary*

The foregoing discussion of the incidence of taxes on labor incomes may seem disappointing to some readers because of the indefiniteness of the conclusions. We cannot say that a tax on wages in general will or will not be shifted upon some other class or classes than wage-earners but only that it may be so shifted in whole or in part if it makes population smaller in a later generation than if it had not been levied. If there is such shifting it is, certainly, not immediate or anything like immediate. For many years such taxes must rest upon wage-earners.

In like manner we cannot say that a tax on labor incomes in some or a few lines will be distributed over all labor incomes. The effect will depend upon the mobility of labor in the taxed line or lines. Nor can we say that taxes on the higher labor incomes will or will not necessarily affect all labor incomes, for such taxes may or may not affect the distribution of labor to different occupations.

Nevertheless, our study is not entirely in vain. We have, in some fashion, surveyed the field. We know something about the nature of the forces which may



operate and we are in a better position than if we had not considered these forces to understand what are the possibilities in the way of rapid and long-time shifting of such taxes. With this we shall have to be content.

## CHAPTER VI

### THE INCIDENCE OF COMPULSORY INSURANCE OF WORKMEN

#### § 1

#### *Statement of the Problem*

In contemporary discussions of workmen's compensation laws much is heard regarding the ultimate incidence of the burden of the insurance premiums. The most common conclusion seems to be that this burden rests ultimately on the consumers of the goods produced by the insured wage-earners.<sup>1</sup> The contention of this chapter is, on the contrary, that the incidence of the burden is upon wage-earners as such. There is no intention to argue that the burden necessarily rests upon the particular groups or trades of wage-earners insured (if the insurance is not general) or that relative prices of goods are in no case affected. But there is an intention to assert that the burden of such insurance is shifted finally upon wage-earners

<sup>1</sup> Professor Taussig, however, argues that when such insurance is general, the burden is upon wage-earners, although it is not clear that he believes this to be the case when the insurance is required only in some industries. See his *Principles of Economics*, third edition, New York (Macmillan), 1921, Vol. II., pp. 353-354.

as such rather than upon the receivers of interest from capital or rent from land; and there is an intention to assert that this is as true if and when insurance is required only in especially dangerous industries as it is if and when such insurance is required in all industries.

It is sometimes urged by way of argument for compulsory insurance of employees by employers, that the money paid to insurance companies or to the state in premiums for insurance is really not a burden in any considerable degree upon any one. For, it is said, the system of compulsory compensation for employees avoids the litigation of damage suits with the consequent large fees paid to lawyers by both sides. Whether this view is well-founded or not we need not here inquire. The insurance premiums which have to be paid do, at least, cost something even if they cost no more than litigation might otherwise cost. It might be a proper question what is the ultimate incidence of the expense of litigation in the absence of compulsory insurance. It is certainly a proper question what is the incidence of the insurance premiums when such insurance is required by law.

For clearness in discussing the problem at issue we may distinguish the three following cases:

1. Where the insurance has to be paid for, at some percentage of wages, by all employers of all labor.

2. Where such insurance is required only in special lines—as, for example, the more dangerous industries—and where the certainty of compensation in case of accident makes workmen willing to work for correspondingly less current wages.

3. Where such insurance is required only in special lines and where the workmen either so underestimate or so overlook the likelihood of accident or think so little about the advantages of compensation that they are not willing to work in the insured industries for less wages than if the insurance and the consequent compensation were not provided for. Let us consider these three cases in order.

## § 2

### *Incidence when Insurance is Required in All Trades or Occupations*

To the student of the theory of distribution and the incidence of taxation the first of the cases ought to seem entirely simple. If and so far as it is true that employers hire workers up to the point where the difference between the product with and without an additional worker is not appreciably greater than the wages paid; and if wages in general are fixed by the demand for labor of all such employers taken along with the supply; then a payment which must be made

for insurance, with each worker hired, will certainly enter into the intelligent employer's calculations.

To illustrate, suppose the marginal worker of a given grade of efficiency to be worth, in any establishment, 1,200 units of product a year. Then at wages up to approximately 1,200 units such a worker may be hired. If all available labor can be employed without reducing the marginal product of labor of this grade below 1,200, then the demand for such labor at approximately that wage will equal the supply. In that case 1,200, or not appreciably less, will be the wage-rate.

But if, for each worker hired, the employer must pay 20 as an insurance premium, then the marginal worker will not be employed at wages of 1,200 but only in case he accepts 20 less, viz., 1,180. At wages for the grade of labor in question, higher than 1,180, some labor will be unemployed, the supply of labor will exceed the demand for it. The insurance premium must be paid for each employee who is hired. The potential employer, therefore, before hiring the workman, compares the value of his services not with his prospective wages alone but with these wages plus the cost of the required insurance. And he will not knowingly employ a workman whose services are worth no more than his wages alone.<sup>1</sup>

<sup>1</sup> Cf. Taussig, *loc. cit.*

The foregoing conclusion cannot be avoided by supposing that the insurance premiums are reflected in rising prices. For there is nothing in the assumed situation which can be expected to make prices higher. The payment of premiums for the insurance of employees does not increase the amount of money in the country. It does not make bank reserves larger, or banks better able to extend credit. It does not, therefore, presumably, *increase the demand* for goods and bid up prices. On the other hand, there is nothing in the requirement of compulsory insurance of employees to *decrease*, as a long-run matter, the *supply* of goods. Workmen cannot afford to remain long idle even if their wages fall by the amounts paid as premiums for their insurance. They will not, therefore, in the long run, produce appreciably less goods. The prices of goods will be raised *neither* by an increased demand *nor* by a decreased supply. The insurance premiums cannot diminish the demand for the use of capital and so reduce interest, since they are not imposed on the use of or in proportion to the amount of use of capital. They cannot diminish the demand for the use of land and so reduce rent. Their only effect must be to reduce wages. It follows that upon wage-earners, as such, must fall the ultimate burden of the payments. A tax upon all commodities or upon all sales would fall, in the last analysis, upon



wage-earners, interest-receivers, and rent-receivers. If, there being no more money or credit to spend for goods, labor, etc., such taxes raise the money prices of goods, then they will lower money incomes in general—not merely wages. Prices of consumable goods can rise, though money incomes decline, because the government, with the money received from the taxes, buys the surplus goods which citizens cannot buy. The prices of goods, including the taxes, will be higher; money incomes will be lower. So much money being paid in extra prices of goods, because of the taxes, less money can be paid to the producers of goods. Net prices—i.e., prices minus the taxes—will be somewhat lower than prices would be if there were no taxes. But net prices determine possible rentals, interest, and wages. The money values of the marginal products of land, capital, and labor are reduced. Hence, the money incomes of landowners, capitalists, and laborers are lessened. An insurance premium, however, imposed upon employers not in proportion to output or to sales but according to the number and wages of workers hired, will not raise prices in general and must fall upon wage-earners and upon wage-earners alone.<sup>1</sup> Wages plus premiums will equal what wages were before. The prices of goods will not be raised.

<sup>1</sup> Note, however, qualifications toward end of this Chapter (VI).

## § 3

*Incidence when Insurance is Required in Some Lines and Advantages are Realized by Workmen*

We have now to consider the second case, viz., where insurance of workers is required not in all but only in especially dangerous industries and trades and where the certainty of compensation in case of accident makes the wage-earners willing to work for correspondingly lower current wages. This case is surely clear enough. If the insurance against accident in these industries and trades is thus clearly conceived by workers as an advantage in so far offsetting the incident dangers, then wages in these industries and trades will ultimately be lower by just about the amount of the premiums which must be paid. Higher wages than this would diminish the demand for labor, since at higher wages the marginal man would not be worth his wages plus the insurance premium. Also, at any higher wages, under the assumed conditions regarding the attitude of workers, the insured industries would become relatively more attractive than before and supply of labor for them would exceed demand. But wages less than before by just the amount of the premiums required would, under the assumed conditions, leave as large a supply of labor for the in-

dustry as before, since the workers regard their certainty of compensation in case of injury as offsetting the reduction in the wages currently paid to them. Also, wages lower than those paid prior to the insurance requirement would mean the same total expense to employers on the marginal workers hired by them, as before, and would therefore make demand for labor the same as before. Demand and supply would therefore balance at wages lower than before by the amount of the required premiums and at these lower wages the same number of men would be hired as previously and the same volume of goods would be produced.

#### § 4

*Incidence when Insurance is Required in Some Lines  
and Advantages are Not Realized by Workmen  
and when Demand for the Products of  
these Lines is Inelastic*

We come now to the third case, viz., where the insurance is required only in special lines <sup>1</sup> and where the workers so underestimate its advantages, or pay so little attention to it, or have previously so little realized, the peculiar risks to life and limb of the industries in question, that it is necessary to pay approximately as high wages after compulsory insur-

<sup>1</sup> Or is much heavier in some lines than in others,

ance is established as before in order to keep in these industries the former number of workers. This is the most difficult case to understand. Yet an analysis of it leads inevitably to the conclusion that the premiums charged for insurance operate to diminish the amount of wages received by wage-earners. In this case, however, it does not diminish, or at least does not diminish by the amount of the premiums paid, the wages in the insurance-protected industries. For if the workers in these industries previously underestimated the dangers or now underestimate the value of the insurance, it is reasonably certain that some of them (those who are marginal between these and other industries or trades) will not remain in the insurance-protected industries if their wages are made lower than before by the amount of the insurance premiums. The wages plus the newly required premiums must be higher than the wages alone were prior to the introduction of a compulsory insurance plan.

Such higher expense for each employee will presumably necessitate higher prices for the product.<sup>1</sup>

<sup>1</sup> It is admitted, of course, that, as in the case of commodity taxes, if production is carried on under conditions of diminishing returns or increasing cost, only part of the burden of the premiums is felt in higher prices. Cf. remarks near close of chapter. Also, in case the goods are produced by a monopoly and in case, at a price higher than the monopoly has been charging, demand becomes much more elastic, perhaps falling almost to zero, the monopoly might bear the loss. See § 1 of Chapter IV.

But the story does not end here. Consumers, as such, so far as they are consumers of goods-in-general and are not especially disposed to consume the particular kinds of goods raised in price by the insurance premiums, will not suffer. The higher prices of these goods will be made up for, to them, by lower prices of other goods. For the higher prices of the goods produced in such insurance-protected industries must either diminish demand for these goods or, in case of an inelastic demand, leave demand approximately the same. If the latter is the situation, then consumers spend so much more money for these goods at the higher prices, that they must either buy less of other goods or secure other goods more cheaply.<sup>2</sup> The inevitable tendency is in the direction of economy in the purchase of other goods. These other goods must sell either at lower prices or in smaller volume. But if they sell in smaller volume, some of the persons who would be engaged in their production will be partly or wholly idle and their competition for employment will tend to bid down wages until they are

<sup>2</sup> The inability of these consumers to pay as high prices as before for other goods will not presumably be offset by larger means of purchase on the part of the recipients of the high prices (including the insurance companies). For these recipients merely get the money that the sellers of other goods would else get. There is no special reason to expect that more money is spent in the aggregate; and, therefore, if some prices are higher, others are likely to be lower.



occupied and until larger production lowers the prices of the goods they produce. Consumers of goods-in-general may then be compensated in the fall of these prices for the rise of the prices of the goods produced in the industries having workers' compensation.

But by so much as the amount paid for workers—including the insurance premiums—in the industries having workers' insurance is increased because of the insurance, by just so much is likely to be decreased, in the long run, the amount going to workers in other industries. The insurance is, indeed, presumably for the benefit of wage-earners and worth its cost; but whether it is worth its cost or not, it is paid for out of wages. It is not paid for out of interest or rent. Doubtless in the lines in which goods fall in price not only will the salable value of the marginal produce of labor fall, but likewise the salable value, *per unit of output*,<sup>1</sup> of the marginal product of land will tend to fall. But correspondingly, in the lines where the cost of insurance, coupled with the impossibility of getting men to work for less in formal wages because of the insurance, makes necessary a rise in the prices of the goods turned out, this rise tends to benefit rent-receivers by affecting the salable value, *per unit of goods*, of the marginal product of land in the same way in which it benefits wage-earners by affecting the salable

<sup>1</sup> See remarks near close of this Chapter (VI).



value of the marginal product of labor.<sup>1</sup> If, then, some landowners get less rent, others are likely to get more.<sup>2</sup> But while some laborers get less wages, *other laborers do not get more*, except in the sense that they have the protection of the insurance and, therefore, the compensation in case of injury. The tendency would be, of course, in the sort of case we are discussing, for the reduced wages in the uninsured lines consequent on diminished demand, to divert some of the laborers into the insured lines, so making the burden general on all wage-earners and leaving the *relation* among wages in the various industries and trades about the same as before.

<sup>1</sup> Receivers of interest on capital in the various lines of industry would temporarily be correspondingly affected. But as capital continually wears out and has to be replaced, interest rates in different lines tend toward equality.

<sup>2</sup> This does not mean that the prices in question rise more than is necessary to cover the premium. But if the rise is barely enough to do that in the case of goods produced on no-rent land or on the intensive margin, the owner of supramarginal land devoted to producing the same goods will have a larger money rent than before.

## § 5

*Incidence when Insurance is Required in Some Lines  
and Advantages are Not Realized by Workmen  
and when Demand for the Products of  
These Lines is Elastic*

We have now seen that the higher prices of the goods produced in the industries or trades where compensation is required will, in case demand for the goods there produced is *inelastic*, cause a fall in the prices of other goods through the intermediation of a decreased demand consequent on a diminished ability to purchase them. We have next to see that the same result in the prices of other goods may be brought about when the demand for the goods which have been raised in price is *elastic*. If the demand for these goods is elastic, then the higher prices must mean that considerably less of them will be purchased. In consequence, fewer persons can find employment in the production of them. The unemployable surplus of workers will then have to seek employment in other lines, thus lowering wages in the other lines, increasing the supply of other goods, and lowering the prices of these other goods. The redistribution of labor would tend, of course, to be such as to spread the lowering of wages over all lines of industry, leav-

ing the lines having insurance in about the same relation to the others as before. For in the case we are assuming, wages in the lines having insurance cannot be much lower than before in relation to other wages if the lines having insurance are to remain supplied—though less supplied than before—with labor. And if, in these lines in which less labor is employed because of the insurance premiums, the marginal physical productivity of labor is raised, in other lines the marginal physical productivity of labor is likely to be somewhat lowered.

Here, again, it should be clear that the burden of the premiums required is not likely to fall in any appreciable degree elsewhere than on wages. Thus, it is not likely to fall upon rent. In the lines where prices fall, the salable value of the marginal product of land may fall (if the falling prices are not, for landowners, offset by a greater physical marginal productivity of land).<sup>1</sup> But in the lines where prices rise, the salable value of the marginal product of land may rise (if the rising prices are not offset by a smaller physical marginal productivity of land). And if higher prices diminish the number of men in some lines and so lower there the marginal productivity of land (while raising the marginal productivity of labor); conversely the increased number of men working in

<sup>1</sup> Note remainder of paragraph.

other lines may raise the marginal productivity of land in these other lines (while lowering that of labor).

The conclusion, then, is that the cost of workmen's insurance falls not upon consumers in general nor upon interest- nor rent-receivers but upon wage-earners. And wage-earners bear this loss in the form of lower wages rather than in the form of higher prices of goods. There is no intention to deny that workmen's compensation in industries the products of which are consumed not at all by wage-earners might be at the expense of others than wage-earners. Though some prices should rise and other prices fall, yet, if wage-earners were consumers only of the goods which fell, a decrease in their money wages would be no loss<sup>1</sup>—or not so much loss. Also, there is no intention to deny that efficiency may be decreased and output lessened in consequence of the shifting of labor from some lines into others, which the requirement of compensation in some lines might cause. And, finally, it is admitted that the diversion of labor may be from lines of relatively constant to lines of relatively decreasing returns from land or vice versa, so *increasing* in the one case or *decreasing* in the other the aggregate land rents received. Thus, to illustrate one possibil-

<sup>1</sup> Whether, if such a loss falls in part on interest-receivers, it may diminish saving, raise the rate of interest, and eventually decrease wages we need not here inquire.

ity, suppose the industries where compensation is paid to be mining industries and suppose that the resulting higher prices of the products of mining decrease demand and cause fewer mines to be operated. If the difference between the marginal mines and the better ones is very great, the lack of demand for the marginal mines may lower royalties or rents in the mining field considerably; while the increased labor employed in other industries may not correspondingly raise other rents. Nevertheless, our general conclusion remains unchanged, viz., that the incidence of the charge for workers' insurance, imposed first on employers, is likely to rest for the most part on wage-earners, and that, *other things being equal*, it will entirely so rest.<sup>1</sup>

No consideration has been given in this chapter to the question whether compulsory workmen's insurance might have effects on population which would tend to make wages higher or lower in a succeeding generation. The incomes of wage-earners are, because of the effect on demand for labor of the required premiums, currently lower, and this might tend to decrease the number of children per family in cases

<sup>1</sup> In the case of taxes imposed on selected commodities, the incidence is different. The taxed commodities rise in price. Other commodities fall slightly in price. Money incomes in general—not wages alone—tend to be somewhat lower. Similar qualifications must be made, however, for cases in which the incident industrial changes may increase or decrease rent.

where no injury is suffered by the insured parent. On the other hand, the insurance paid in cases of accident helps provide for the children of those who are injured or killed. In the absence of any clear indication that the future supply of labor would be less—or greater?—because of compulsory workmen's insurance, it seems preferable to express no opinion.

Except that possible effects on population are not allowed for, the argument of the preceding pages relates frankly to the long-run situation. There is no intention to assert that the adoption of compulsory workmen's insurance *must immediately* decrease wages enough to cover the cost. The point is that the premiums required of employers enter as a new element into every wage contract, upset whatever condition of equilibrium between wages and product had been previously arrived at, and so affect demand for labor and tend toward reduced average wages.

But to say that the burden of the premium paid for workmen's insurance falls ultimately upon wage-earners as such, is not to question the desirability of such insurance. Insurance, as is well known, is a pooling of risks. All bear a little loss in order that none may suffer the extreme loss. The workmen who are not injured receive slightly lower wages in order that those who are injured—and their families—need not be reduced to poverty.



Furthermore, if such insurance is desirable, it is likewise desirable that the initial burden should fall upon employers. It would be impracticable to attempt collection from the sometimes hundreds or thousands of workers in a single plant. And besides, to put the burden initially on employers serves to fix responsibility upon them for the safety of the plants they control. For if insurance premiums are made to depend (as they ought to depend) upon the degree of safety maintained in each plant, then each employer has a motive for making his own plant as safe as possible. While it is true as a general proposition that the burden of the insurance premiums tends to rest upon wage-earners in lower wages, nevertheless the employer who has to pay a higher premium than others pay, because of the low degree of safety of his plant, cannot on that account get workmen for lower wages than his rivals have to pay for the same work; and likewise the employer whose plant has so high a degree of safety that his premiums are especially low will not, on that account, have to pay wages above the level paid by other employers for work of equivalent quality.

It will be obvious to the reader that premiums charged in the same way to provide for health or old-age insurance will have effects similar to premiums charged to provide for insurance against accident, so

far as their incidence is concerned. They too will be paid, in the last analysis, by wage-earners, regardless of their imposition in whole or in part, initially upon employers. Where insurance is provided from public funds, the incidence of the burden will depend upon the ultimate incidence of the taxes imposed to provide these funds.

## § 6

### *Summary*

In concluding this chapter it is perhaps not necessary to recall in detail the various specific conditions considered. In general, a charge on employers for insurance of employees against accident, sickness, old age or anything else operates to diminish the amount paid directly to employees as wages. This is because demand for labor, with an insurance premium added to wages, decreases as compared with what this demand for labor would be with the same wages directly paid and without the premium. Only as the additional expense for insurance is offset by decreased wages, can demand for labor be as large as it would be in the absence of the premium. The cost of the insurance may, in certain contingencies, fall on wages-in-general rather than on the wages of a specific group of insured workmen in an especially dangerous trade. But the

cost tends to fall either on the particular wages of the insured employees or on wages-in-general. The employer whose plant is exceptionally safe and who therefore pays a lower premium than others does not, however, have to pay higher wages; nor is an employer whose plant is more dangerous than those of his competitors able to reduce the wages of his employees below the general level so as to impose upon them the additional cost of the higher insurance charge.

## CHAPTER VII

### THE INCIDENCE OF TAXES ON CAPITAL AND THE INCOME FROM CAPITAL

#### § 1

#### *The Incidence of Taxes on Capital Used in Some as Distinguished from All Industries*

Taxes may be levied on capital in general or they may be levied on capital discriminatingly. If they are levied on capital discriminatingly, then they either rest exclusively on some capital or the rate at which some capital is taxed is higher than the general rate. The problem which we have now to consider is whether a special tax on capital used in some—but not in all—industries is shiftable and, if shiftable, upon what persons, class or classes it is shifted. The shifting will prove not to be quite the same—if it is at all the same—as in the case of taxation of commodities. A tax on commodities, as such, rests largely on the consumers of such commodities. But we shall see that a tax on producers not according to output but according to amount of capital, would not rest on consumers as such, although it might cause the prices of certain goods to rise.

It may be pointed out, to begin with, that a tax on the capital used in some industries may, for a time, involve no shifting at all. For in order that the tax may be shifted it must have a tendency to limit supply and a tax on the capital used in one or several industries may not, during a considerable period, appreciably limit the supply of capital in such industry or industries. Much of invested capital is so highly specialized that it cannot advantageously be used in any other way—e.g., the roadbed, tracks, engines and cars of a railroad—and is so durable that it needs to be replaced only at long intervals. Highly specialized and durable capital is not for the time being marginal between its present use and any other. If practically all of the taxed capital is of this sort, the tax may, for a while, divert no capital or almost none into other lines, may limit supply of capital and supply of goods in the taxed line almost not at all, and may so fail to raise the prices of the products of the industry (or industries) taxed or to reimburse the owners of the taxed capital by higher earnings.

But much capital can be turned from one industry to another with comparatively little loss. Thus, the first floor of a corner building near a residence section may be equally useful as a pharmacy or as a grocery store. The first floor of a building in a business section may be about equally useful as a furnishing, dry

goods, or grocery store, meat market or restaurant. Likewise, some factories can, with not excessive changes, be adapted to the production of other goods than those to the production of which they are now directed. Where such diversion can be made easily and quickly, there may be immediate shifting of the kind of tax in question.

In the long run, a tax on capital in special fields, which does not apply to capital generally, is certain to be shifted. For capital wears out and has to be replaced. And a tax on capital in any special line will, therefore, in the long run, diminish the amount of capital invested in that line by causing depreciation or investment funds to be invested in other lines by preference. This will raise the marginal physical productivity of capital in the taxed line.<sup>1</sup> It will deprive labor in that line of part of its equipment, will so reduce the physical productivity of labor (and of land), and may cause a decrease of labor (and land) devoted to such production. In any case, the supply of goods of the kind or kinds in question will be decreased and their prices will tend upward.

In a growing community another circumstance tends to the same result. There is a constantly increasing need for goods-in-general and, probably, for the goods

<sup>1</sup> Cf. Clark, *The Distribution of Wealth*, New York (Macmillan), 1900, pp. 282-287.



produced by the use of the taxed capital. There is a requirement, therefore, that the amount of capital devoted to such production shall be absolutely increased. Not only must old instruments be replaced but additional ones must be forthcoming. This, however, the tax will tend to prevent. New capital will prefer other industries unless and until the demand for the goods of the taxed industries makes the use of capital in them as profitable, in spite of the tax, as elsewhere. Prices of goods in such an industry or industries will, therefore, tend upward relatively to other prices.<sup>1</sup>

Does the burden of such a tax, then, rest upon the consumers of the goods produced by the taxed capital? This is the view to which a superficial consideration might lead us, but it is not the true one. So far as capital is pushed out or kept out of such an industry because of the tax, more capital is available (assuming the aggregate value of capital not to be affected) for other industries. If, therefore, the goods produced by the taxed capital are more scarce, the goods produced by other capital may be more plentiful. The rise in some prices may then be offset by a slight fall in other prices. If so, the consumers

<sup>1</sup> Only a relative price rise is here contended for. Due to changes in volume of money or credit or other changes affecting the general price level, all prices may rise or fall, although at different rates.

of the goods which are higher in price are compensated in large degree for these higher prices in their purchases of other goods which are lower in price.

In a somewhat similar way we might plausibly rebut the presumption that laborers in an industry the capital of which was decreased by discriminating taxation would suffer through lower wages or that laborers in general would so suffer (or that owners of land would receive smaller rents). It is true that laborers in the industry the capital of which is taxed tend to be less well supplied with capital and to have a lower marginal physical productivity on account of the tax. But in so far as this lower physical productivity is not offset by higher prices of the goods produced (as it may be because of diminished output due to decrease of capital in the industry), so as to give approximately the same wages as before, the laborers in question are likely to turn in part to other industries. (Land, of course, can be similarly diverted, in many cases, for a like reason.) And since into these other industries there is being driven by the tax an increased amount of capital, such industries can receive an increased amount of labor (and land) without a diminution of its marginal efficiency. Indeed, a slight increase of labor in them might be consistent—because of the capital forced in—with increased marginal labor efficiency. If, then, prices of goods

produced in these other industries fall because of larger output due to the influx of capital driven into them by the tax, the loss will presumably fall on the owners of the more strongly competing capital rather than upon wage-earners.

The conclusion would seem to be, then, that the burden of a tax on some capital is finally (assuming that it does not tend to decrease the aggregate volume of capital) distributed upon the owners of all capital in the taxed community.<sup>1</sup> The marginal product of labor in general is not less.<sup>2</sup> The demand for labor is not reduced. The assumed tax is not on commodities and does not rest on consumers. It is not on wages and does not rest on wage-earners. It is not on land rent and does not rest on landowners. It does not rest exclusively on the owners of capital in the industry or industries taxed, since capital tends to be driven to some extent from such industry or industries into others. It does rest on the income of capital-in-general including capital in the industries

<sup>1</sup> This point was first suggested to the writer by Professor H. J. Davenport in the spring of 1916. It was set forth in an article by T. S. Adams on "Tax Exemption through Tax Capitalization" in the *American Economic Review*, June, 1916, p. 278, and in an article in the March, 1917, number of the same magazine by Davenport entitled "Theoretical Issues in the Single Tax" (pp. 26-28, footnote).

<sup>2</sup> Except as some redistribution—if there is any such—may affect efficiency.

not taxed as well as in the industries taxed. The present Federal income tax is not an example of a tax on capital alone (or on the income of capital alone), since it bears also on income from labor and from land. So far, however, as it is a tax on the income of capital it is a tax on the income of some and not of all capital. It does not apply to income from the bonds of our state governments and of the various counties, towns and cities within the states nor to the income from bonds issued under the Federal Farm Loan Act. So far as the income tax causes investment in such "tax-exempt securities" rather than elsewhere and thus enables states, counties, towns, cities and farmers to borrow at lower interest rates while making the securing of capital for other corporations, persons and businesses more difficult, the result illustrates the tendency of a tax on some capital to affect the rate of return on other capital.

## § 2

### *The Incidence of Taxes on Capital in General*

We have said that the burden of a tax on capital in some uses tends thus to be spread out among the owners of all capital if and so far as the tax has no tendency to affect the total amount of capital accumulated. In this regard it is similar to a tax on all

capital, and the question whether it can be shifted upon other classes than owners of capital or not is similar to the question whether or not a tax on all capital can be so shifted. To that problem, therefore, we will now address ourselves.

What, then, is the incidence of a tax on all capital or its income? Does the burden of such a tax necessarily rest upon capital owners under any conditions whatever, or may it rest on landowners and laborers? May it, under any circumstances, raise prices to consumers? Where the burden of such a tax will rest depends entirely upon what effect it does or does not have on the supply of capital. A tax may affect the supply of capital in two ways. It may affect the distribution of capital between the taxing jurisdiction and others. Or it may affect the total volume of saving. It may conceivably affect the volume of capital within the taxing country while yet not appreciably affecting saving, either by preventing (or decreasing) the importation of capital into the capital-taxing country or by inducing capital-owning citizens of the taxing country to invest their capital abroad. The latter result is, however, relatively unlikely to occur, since the taxing country may try with more or less success to tax the income from the property of its citizens wherever situated.

As to whether a tax which, at the start, diminishes

the average net returns on capital, will affect the total amount of capital brought into existence, this is really the same question as whether a lower rate of interest would result in less saving than a higher rate. We should not hastily conclude if and because there are some who will not save except at a high interest that high interest has, in general, the result of stimulating saving. That it does have this result has commonly been assumed by economists and is not here denied, but the certainty of its doing so is nevertheless to be questioned. There are undoubtedly some persons who would save more at a rather low rate of return on capital than at a somewhat higher rate.<sup>1</sup> Let us consider the case of a man who wishes to leave to his descendants an income of \$5,000 a year, which, in his view, will be sufficient for their needs. If interest is 10 per cent., an accumulated capital of \$50,000 will be sufficient for his purpose. But if interest is 5 per cent., it will be necessary for him to save \$100,000 in order to leave the desired income to his family without the necessity of their at any time trenching on the capital.<sup>2</sup> He might actually save

<sup>1</sup> See Cassell, *The Nature and Necessity of Interest*, London (Macmillan), 1903, pp. 146-148.

<sup>2</sup> It should be unnecessary to point out that, even if this attitude were general, there would be a limit to the amount actually saved, and a rate of interest would result dependent upon the relation between the advantages of the use of capital and the disposition



\$70,000 and have to expect some using up, by his family, of the saved funds.

That more saving would result or that as much saving would result from lower interest as from higher seems, however, not probable. In the first place, it is fairly likely that a person who would save \$100,000 when interest was 5 per cent., in order that his family might have a \$5,000 income, would save more than \$50,000 if interest were 10 per cent., considering the extra income which his family might thus secure as more than compensating the smaller relative sacrifice. Reversing the form of statement, we may say that few persons probably would, because of a lower interest rate, save an enough larger sum to yield the same annual income as they would expect to provide if the rate of interest were higher. There is, indeed, reason to doubt whether the average person would save as much in expectation of low interest as if there were prospects of large gains from the saving. Saving for old age and the saving which is done through life insurance companies, would yield less return on the same investment. But let us consider the usually larger savings of those who endeavor to provide for their families permanent funded incomes. Would this

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(or lack of disposition) to save. Though the supply curve of capital or waiting should slope backward, there would still, presumably, be some point of intersection with the demand curve, at which point interest would be determined.

type of saving not be discouraged? If we assume as an extreme limit a zero rate of interest, we have an hypothesis of a condition under which no return would be yielded on anything less than an infinite sum saved.<sup>1</sup> With no funded income within the realm of the attainable, might not some who now save large amounts, give up the idea of funded family fortunes, and live for the pleasures of each passing day? And in lesser degree might not a very low return, say 1 per cent., have a corresponding kind of effect?

In the second place, the possibility of interest being realized carries with it a sort of selection. Those who have the disposition to save soon find themselves realizing interest on their savings and thereby acquire additional ability to save. The higher interest becomes, the more saving can be done by those who wish to save, and this fact suggests the likelihood of greater aggregate saving at higher interest than at lower.<sup>2</sup>

<sup>1</sup> Mathematical processes give zero times infinity as indeterminate.

<sup>2</sup> Some one may reply that a higher interest means less capital, a lower productivity and hence lower wages, with decreased saving power of wage-earners, even of wage-earners who are most ambitious to save. But such an argument would entirely miss the point. The discussion above in the text has to do with the effect of interest on saving and calls attention to the fact that, other things equal, higher interest means more saving in so far as it

The problem seems insoluble, however, with our present data. It may well be true, as economists have commonly supposed, that, on the whole, considerable reductions in net interest to capital owners, such as might be the consequence of taxing capital heavily, tend to decrease saving and so to give the use of capital a scarcity value and raise interest rates. If so, a large part of the tax on capital would be shifted in higher interest rates for the use of capital, so leaving lower net returns to capital users, including laborers.

But if, as some argue—and to refute them conclusively with our present data would be difficult,—the amount of saving done would be the same or greater under the condition of a lower net return on saving, the burden of the tax would have a different incidence. Such a tax on capital, or on the income from capital, would then clearly fall upon the owners of the capital taxed. For their net per cent. return on their capital

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may add to the saving power of those who have the saving disposition. The criticism in question—if made—approaches the relations discussed, not from the direction of the effect of interest on saving, but from the direction of the effect of saving on interest. It assumes that the high interest which is, in the text, spoken of as probably a *cause of saving*, is a *result* of a *lack of saving* and therefore *lack of capital*; whereas for the problem under discussion, the high interest which stimulates saving must be held to result from inventions or some other interest-raising cause not connected with a dearth of saving.

would be reduced by the entire amount of the tax charge.

We may conclude, then, that a tax which reduces the net returns from the ownership of capital as such, might so affect accumulation as to make the supply of capital less, its marginal productivity greater and gross interest higher, so throwing the burden of the tax, in the long run, partly upon others than the owners of the capital. But we must also conclude that of this there is no certainty. For so far at least as the writer knows, there has never been presented a rigid proof that savings in a modern community would be less at (say) two or three per cent. net return a year than at six or eight. The belief that such is the case depends upon a generalization as to human nature which knows too many exceptions to be reliable without a fuller count than has yet been made or can easily be made. The very persons who assert and believe that they would do less saving if interest were lower may not, as a matter of fact, be judging themselves rightly. Perhaps the very most we can say is that there seems to be some probability that a tax which very seriously decreased the net returns to owners of accumulated capital would operate adversely to capital accumulation and might so be partly shifted upon some other class or classes than capital owners, in the very long run.

Although we do not have, in the United States or in other modern countries, any tax applicable to all capital or to the income from all capital and not to anything else, we do have taxes levied on capital or its income along with other property or other income. Thus, the familiar general property tax of American states and cities is levied upon both land and capital. And the Federal income tax (as well as the income taxes of various states) is levied at the same time on incomes from labor, land and capital. It would seem to be entirely legitimate, however, to isolate, in thought, that part of a property or an income tax which rests upon capital, for purposes of analysis. And only by doing so can we determine what are likely to be the effects and what is likely to be the incidence of that part of such a tax. When, therefore, in the succeeding discussion, reference is made to a tax or taxes on capital-in-general or on the income from capital-in-general, it is to be understood that the argument applies, not only to taxes which touch nothing other than capital but, equally, to that part of more general taxes which rests on capital.

In case a tax on capital is shifted, upon whom does the burden fall and how does shifting take place? To assert that the burden falls upon consumers would be inaccurate. Prices of goods may or may not rise, depending on the relation of the quantity of goods



produced to the quantity of money and credit.<sup>1</sup> A tax which diminishes the amount of capital will tend, it is true, to diminish the efficiency of goods production and so to decrease the supply of goods. But it may also tend to diminish the efficiency of gold production and so to diminish the volume of money. At any rate, whether general prices rise or not, something more of analysis is required to determine upon what classes the burden of such a tax on capital is chiefly shifted—unless it could be established that the tax tended to make all commodity prices rise and all money incomes fall, as in the case of a general commodity or sales tax.<sup>2</sup> In that case, the tax could be shown to rest on all consumers without distinction as to whether they were landowners, capitalists or laborers. In proportion, however, as a tax on capital, by diminishing the net income of capital, discourages capital accumulation, the owners of capital shift its burden upon other classes. Whatever, in the case, may happen to the general level of prices, the marginal productivity of capital and hence the interest on capital (including the part collected as tax) rises relatively to the marginal productivity of labor and

<sup>1</sup> Business confidence with the tendency to spend readily or hesitatingly is of course to be taken into account.

<sup>2</sup> See Chapter III.



wages and relatively to the marginal productivity of land and economic rent. The tax then tends to be shifted, to some extent, upon workers and landowners.

If the bearing of a part of this burden, by workers, in the form of lower real wages (i.e., reckoning goods and not merely money) tends to reduce population and so to make the supply of labor smaller, real wages tend upward and the tax falls in relatively larger proportion upon the owners of land. The demand for land is reduced. Land formerly yielding low rent comes to be marginal or no-rent land. Land which yielded high rent yields less. On the assumptions here made as to the effect of taxing capital on capital accumulation and as to the effect of a burden on wages upon population, we should arrive at something like the physiocratic doctrine that all taxes must finally fall upon the owners of land, in the form of diminished rent. But we should need to include among landowners the owners of urban and other non-agricultural land, whose status the physiocratic theory seems to have overlooked. And, also, we should need to distinguish between such indirect taxation of land, which would fall upon all owners of land, taking all their rent from the owners of near-marginal land while only taking a small proportion of their rent

from the owners of superior land, and a direct tax upon land rent, which would take the same per cent. from the rental yield of all land.

Even if, however, the tax is levied not on all capital but only on special kinds of capital, it may still conceivably be shifted in part upon the owners of land. For it may be levied upon capital the construction or use of which requires a large amount of land and fail to be levied on capital the construction and use of which requires only a small amount of land. To discourage construction of the former kind of capital will tend to decrease the demand for land even although the total amount of construction is not at all affected. For it will cause the construction of capital which does not require the use of much land as distinguished from the construction of the taxed capital which requires more land; and so the tax will operate in the direction of reducing the rental yield of land. But unless the taxed capital is of such a sort that it requires a larger use of land than the exempt capital, no such effect will be produced. It is true that the decreased construction of the taxed capital may cause a smaller demand for the land which would be used in conjunction with it. But the increased construction of other capital into which investment is driven by the tax will tend to cause an increase of demand for some other land.

We may, perhaps, with advantage, illustrate the problem by reference to the possible effects of a tax on houses—or even on buildings in general. A sufficiently high tax on houses would, undoubtedly, cause smaller and fewer houses to be built. House rents would rise and people would economize in house accommodation. In some cases families would occupy smaller or less well-constructed houses. In other cases a larger number of persons or families would occupy a single building of a given size. The demand for land for residence purposes would, therefore, decrease, and the rental and salable value of land in residence sections not practically utilizable for other purposes would fall. But this does not necessarily mean that land rent in general would fall. For we have to reckon with the effect of the tax on the construction of other kinds of capital and the consequent demand for land on which to use it. Fewer houses would be constructed but—if diminished returns did not discourage capital accumulation in general—more capital of other kinds would be brought into existence. This other capital might be buildings other than dwellings and might create an additional demand for business sites. Or it might be—especially if the tax applied to all buildings—farm machinery, etc., the use of which requires land of other sorts. In that case, it probably could not be said with truth

that the tax diminished the demand for land. A tax on special kinds of capital, if it is to be shifted partly upon the recipients of land rent, even though accumulation is not decreased, must cause the construction of capital using relatively little land *instead of* the construction of capital using relatively much land. And no considerable effect of this sort is to be expected.

Modern income taxes are frequently progressive. Thus, in the United States, the Federal income tax is a progressive tax. It has been until recently, however, levied on incomes from labor, incomes from capital and incomes from land without distinction. There is now a limited difference in favor of incomes from labor up to \$10,000 a year. In this chapter we are chiefly interested in that part of the income tax which falls upon the incomes from capital. For the purposes of the present discussion we must isolate that part of the tax, in thought, from the rest.

So far as an income tax applies to the income from capital it may, as we have seen, discourage saving by diminishing the reward of saving. But does a high tax rate on large incomes from capital weaken the motive to saving so greatly as would a corresponding rate on smaller incomes from capital? Very likely not. It is easier to save from the larger income—certainly unless tastes and habits have become ad-

justed to it—than from the smaller. If the larger income is being enjoyed by a person who himself accumulated the capital which yields it, rather than by a person who has inherited this capital, the chances are good that the habit of saving was acquired during the early years of the accumulation of the capital and will not disappear. It is perhaps in the early stages of saving and when the amounts saved are still small that the inducement of interest is most essential. Saving is then not so easy as later but involves considerable incident deprivation. The hope of rapid increase of wealth, through interest, dividends or the like, until a fair competence can be accumulated, may then be, in many cases, a motive without which saving would not be done. In other words, a larger proportionate gain from saving may frequently be required to induce saving by a person who has little or no capital and a relatively small income than to keep the same individual saving if and when he has acquired a competence and has a relatively large income.

There may be persons who would be affected differently. Perhaps some who would save eagerly, to get a start in life, even although likely to be heavily taxed on the yield of such saving, would require a greater inducement for further saving when they had already saved what seemed to them sufficient. Yet, all things considered, it seems a not unreasonable con-

clusion that a graduated tax on incomes from capital probably tends to discourage saving less than would a proportional tax levied at a high enough rate to yield an equal total revenue.

### § 3

#### *The Ability Theory of Taxation*

The emphasis in the above discussion, as throughout most of this book, has been upon possible effects of various taxes, on human actions. Do certain taxes tend to drive people out of one line of production into another? Do such taxes tend to make goods of any kind more scarce? Do other taxes tend to discourage saving, reduce the material equipment of industry, and raise interest?

There is, however, on the part of many writers, an emphasis upon the subjective effects of taxes. How do the taxes which he must pay affect the mind of the tax payer? How great is the sacrifice? How much more is the sacrifice of utility when a given amount is taken in taxation from the recipient of a small income than when a like amount is taken from the recipient of a large income? It is such considerations as these which are largely in the minds of the advocates of "taxation according to ability."

The expression "taxation according to ability" is



somewhat vague except in so far as it refers to the obvious fact that persons who have no margin above the bare necessities of existence have no ability to pay taxes. Somewhat more definite is the concept of "equal sacrifice." It is urged that taxes should be so levied as to impose an "equal" amount of "sacrifice" on all tax payers. There is, of course, recognition of the fact that no one can tell what equal sacrifices are. The loss of a part of his income by a person of certain definite tastes and habits, may be felt far more keenly than a similar loss by another person of different temperament. But the view held is that, in general, the utility of wealth to an owner of it—or of income to a recipient—varies inversely with the amount he has, perhaps decreasing in even greater ratio than his wealth increases. Therefore it is argued that a large tax drawn from the well-to-do involves no greater sacrifice than a small tax levied on the comparatively poor. And the advocates of progressive taxation, when they profess also belief in the theory of equal sacrifice, contend that in order to make sacrifice equal, taxation on the larger incomes must be at a higher *rate* than on the smaller, due allowance being made, also, for dependent children.

If we proceed further in the same direction we come to the theory of least sacrifice. By this theory, all taxes would fall on the well-to-do unless or until

their net incomes were reduced to the level of the incomes of others. Thus, suppose two persons, A and B, the former having an annual income of \$10,000 and the latter an income of \$1,000 and suppose the sum which the state was to raise from both of them to be \$1,100. In order that the total sacrifice should be the least possible, A would have to contribute the entire amount. For suppose that A had already paid \$1,050 and the question arose who was to pay the next \$50! Or suppose, even, that A had already paid \$1,095 and the question was asked who should pay the next \$5! Obviously, it would have to be A. For as A's remaining income after paying \$1,095 is still larger than B's entire income, A would suffer less from paying an additional tax of \$5 than B would suffer from paying a like amount. Carrying the argument a step further, it might plausibly be contended that aggregate well-being would be increased by taxing the rich to provide for the poor, up to such a point that all wealth was distributed equally or according to need.

If men received their incomes without effort or saving, so that there would be no discouragement to either from the denial of a proportionate reward and if there were no possible danger of over-population or of multiplication of the unfit from proportioning family incomes to family need, then perhaps wealth and

income should be apportioned on the principle of maximizing utilities. As it is, to maximize utilities in the present would very likely not conduce to their maximization in the long run.

As to whether the principle of equal sacrifice should be largely considered in framing tax laws or as to whether any degree of compromise between it and the principle of least sacrifice might be desirable, or as to whether taxation should be so levied as to interfere as little as possible with the proportioning of incomes to efficiency and to services rendered, no opinion is here expressed.

#### § 4

##### *Possible Net Loss to Community from Tax on Capital*

If, in consequence of a tax on capital or on the income from capital, accumulation is discouraged, the loss to the people of the taxing country is greater than the gain in revenue to the government. For the people lose the benefit from the use of the capital which might have been accumulated but which, because of the tax, has not been; while from this might-have-been capital the government gets no revenue.

## § 5

*The Incidence of Taxes on "Excess Profits"*

The so-called excess profits tax is in effect, if not technically, a tax on capital or its interest. It does not apply to all capital but only to capital yielding in excess of what is regarded as a "normal" or "reasonable" return or "profit." The word "profit" is used by many economists to mean a return to self-directed labor—to the entrepreneur or enterpriser as such. But the sense in which it was used in the Federal excess profits tax law of 1919 was different. It meant, there, a per cent. return on invested capital. And the tax applied to any excess of net returns, in the case of corporations, above \$3,000 plus 8 per cent. of invested capital. The returns received by stockholders of a corporation are not perhaps to be regarded as entirely income from property. In part they represent income from the labor of direction as such. For stockholders—at least those who are active in exercising control and direction—are entrepreneurs or enterprisers as well as capitalists. Also, the incomes received by them are partly land rent as well as capital interest. Nevertheless, the incidence of excess profits taxes may as well be discussed here as elsewhere. Are such taxes shifted and, if so, upon whom?

If there is shifting in the case of the excess profits tax it must be, as in other cases of shifting, because the tax tends to affect supply. There are three possible reasons why an excess profits tax may affect the supply of goods or capital. Let us consider them in order.

In the first place such a tax may somewhat retard the distribution of capital to different industries which would otherwise take place. An industry may be exceptionally profitable because it is temporarily relatively undersupplied with capital (or land). The relative scarcity of capital (and, perhaps, of land) in the industry makes the returns high on what capital (and, perhaps, what land) there is invested in it. But these high returns tempt others to invest their capital (and land, together with, perhaps, their active interest) in this line with resulting increase of competition until the prices of the goods produced in the industry fall and the returns to the owners of capital (and land) in it decrease and become as low as the returns yielded in other lines. An excess profits tax makes the high returns of such an exceptionally profitable industry *at once* less high in relation to the returns in other industries. It, therefore, lessens the inducement to invest capital in the profitable line. The readjustment in proportionate capital investment is slower. The returns in the highly profitable indus-

try remain for a longer time abnormally large—although taxed—and the prices of goods produced in that industry remain high longer than would else be the case. On the other hand, the returns to capital in the other lines from which capital might be quickly drawn tend to remain lower and prices of goods produced in those lines tend to remain lower for a somewhat longer time. The effects which thus tend to be produced on returns and prices in these other lines are, of course, not likely to be noticeable since they spread over so many industries and goods.

In the second place, a tax on excess profits tends to discriminate against the risky industries—the industries of irregular returns. To levy a high tax on all returns in excess of 8 per cent. is not to burden at all a stable industry which regularly earns only 8 per cent. It is to burden only slightly an industry which regularly earns 10 per cent. But it is to burden very considerably an industry which earns 24 or 30 per cent. once in about three years and the rest of the time nothing. Though the returns *average* no more in such an industry than in the case of the stable industry, a larger proportion of them are “excess” returns and more tax has to be paid. There is a tendency, therefore, for an excess profits tax to discourage the investment of capital in the risky industries or industries of irregular returns, to keep more



capital invested in the more stable industries and to keep the goods produced in the risky industries relatively high in price.

In the third place, a tax on excess profits, since it tends to reduce average net returns from capital (though it falls partly on other income, e.g., income from land), may possibly operate to diminish accumulation. If and so far as it tends to do this, it of course makes the amount of capital smaller, raises the marginal productivity of capital, and tends so to increase average net returns. In that case the tax burden falls ultimately, in large part, on wages or land rent or both. In short, a tax on so-called excess profits may operate, in this regard, somewhat as a general tax on capital may operate, viz., to decrease accumulation. But in the case of taxes on excess profits, as in the other case, we cannot predict such a result with certainty.

We must not too hastily conclude, however, that taxes on excess profits are always liable to some shifting. For when the excess returns are due to monopoly no tax, however large, on the excess over normal competitive returns can possibly be shifted. We are here back to our old problem concerning the incidence of taxes on net monopoly profits.<sup>1</sup> A tax on net monopoly profits of course means nothing if there are

<sup>1</sup> See Chapter IV, § 7.

no such profits. And a strict policy of price regulation or other governmental control or restriction of monopoly may leave no such profits to tax. If any such policy is practicable there is a sense in which the tax is shifted. For the alternative to taxing the profits of monopoly is to compel, directly or indirectly, lower prices and so leave no monopoly profits to tax. To allow the formation of monopolies and to leave their prices uncontrolled, in order that monopoly profits may be taxed, is, in a sense, to shift the burden of taxation upon consumers. But if monopolies are to be allowed to exist and if their prices are to be unregulated, taxes on their net profits will not be likely to affect their prices. A monopolist will not charge higher prices, because of a per cent. tax on profits, than he would charge in the absence of a tax, other things being equal. For he will in any case, if influenced solely by business considerations, aim to charge the price yielding the highest net returns, and if, before the tax is levied, he has succeeded in charging this most profitable price, the tax will not induce him to charge more, since a higher price would reduce his net returns and, whatever per cent. of such returns the tax might be, less would remain after payment of it than if the price had not been raised.

So far as an excess profits tax discriminates against corporations, as did the Federal excess profits tax of

1919 by taxing the earnings of corporations while not taxing those of private businesses and partnerships, there is some tendency to discourage the corporate form of organization even when that is the best and most suitable form for the industry in question.

In concluding our discussion regarding taxes on excess profits, it may be desirable to add a few words regarding the possibilities of evasion. Evasion and shifting are two entirely different problems. So far as a tax is evaded, there is no payment to shift and hence there is no shifting; although the difficulties and the cost of evasion may possibly affect supply and price. An excess profits tax can be evaded, in many cases, by the payment of high salaries to officers who are also stockholders. There are, then, no profits, or relatively small profits, to be taxed. Also, when a tax on excess profits is believed to be temporary, it is sometimes evaded by paying large amounts currently for advertising. This expenditure brings it about that current net returns are small. But the policy is followed in the expectation that the advertising will build up a reputation for the evading concern's goods and so make for larger profits after the tax is repealed. Such attempted evasion would be usually to little or no purpose if the tax were to be permanent, since the future gains from the present advertising would, where considerable, be liable to the

tax equally with present gains. But if, by current expenditure for advertising, present gains which would be taxable can be converted into future gains which, because of repeal of the tax law, are not taxable, such expenditure is likely to be common.

## § 6

### *The Incidence of Taxes on Inherited Wealth*

The tendency to levy taxes on bequests and inheritances is growing. Can such taxes be in any way shifted? Do they affect, in the last analysis, other persons or classes than those upon whom they are levied? Taxes on inherited wealth are not, perhaps, to be classed, strictly, with taxes on the income from capital. They are levied on property as such and the rates are frequently so high that payment must be made out of property rather than out of current income. But the effects of taxing property in this way may possibly be enough like the effects of taxing the income from capital to justify consideration of both in the same chapter. At any rate there seems to be no other place where we can discuss the problem to better advantage. If all property were like land, practically fixed in amount by nature, a tax levied at the death of the owners, taking a part of the property of each deceased person for the state, would not

at all diminish the amount of property and such a tax could in no way be shifted. But the amount of capital (as distinguished from land) which is brought into existence depends upon saving, and a considerable part of saving is probably done in order that wealth may be transmitted by those saving it to descendants or to others towards whom affection or obligation is felt. Hence, it is possible that the taxation of inheritances and bequests might decrease the amount of wealth accumulated by lessening the motive to accumulate. If so, there would be a tendency for interest to be higher and for the burden of such taxation to be shifted in part from the owners of capital upon others. So far as such a tax did operate to decrease the volume of saving and raise interest rates, its burden would be upon laborers or landowners or both and not upon owners or inheritors of capital. It is partly, perhaps, because of the possibility here indicated regarding accumulation that the taxation of inherited wealth is frequently made progressive, resting lightly both on small estates and on estates transmitted to persons most closely related to the deceased, e.g., direct descendants. In this way, it is generally believed, the motive to accumulate will be weakened as little as possible and, also, the burden of inheritance taxation will be least felt.

Taxes on inherited wealth, if shifted in part because



of a resulting higher interest rate, may not clearly appear to be shifted because any one person who pays such a tax cannot, on that account, charge appreciably higher interest on his capital. But in this regard the situation is like that arising in the taxation of competitively produced goods. The fact that any one producer pays a tax on his output may not enable him to charge more to consumers. But if all producers of a given kind of goods have to pay a tax on output and if this tends to decrease the supply of the taxed goods, then there result higher prices and shifting. Likewise, if inheritance taxation does tend to lessen the supply of capital, then we must expect, as a consequence of any such taxation, higher interest and shifting.

There are, in the case of inheritance taxation, some possibilities of evasion. Gifts may be made before death. Coupon bonds may be placed where they will be accessible to heirs, who can claim to have owned them from the first. Even though the law endeavors, as by making gifts in anticipation of death also taxable, to prevent such evasion, it is doubtful whether evasion can be entirely prevented. Nevertheless, the now popular policy of taxing inheritances cannot be said to be entirely without merit.



## § 7

*Summary*

As in the case of the taxation of labor incomes, so here our conclusions are, in large part, rather conclusions regarding the various forces at work and consequent possibilities than they are conclusions that one or another result absolutely will follow a given tax. A tax on capital used for some purposes tends to affect, more or less quickly, according to the degree of mobility of the capital, the net returns on all capital. But whether such a tax, or a tax levied in the first instance upon all capital, or a tax on inheritances and bequests, can be shifted eventually in any degree upon other classes than capital owners, depends upon whether such taxation tends to decrease saving and therefore to raise interest. That it has actually this effect may seem reasonably probable but we cannot, apparently, so conclude with certainty. If it does this, the people lose more than the government gains. In the case of an inheritance tax, the motive to accumulation is probably not much weakened if the rate is high only on wealth transmitted to distant relatives and to persons not related to the decedent. Possibly the motive to accumulate is not very

much weakened even by high taxes on estates going to direct descendants if the taxes are high only where such estates are large. The present tendency is to make inheritance taxation progressive according to amount and, frequently, according to distance of relationship.

## CHAPTER VIII

### THE INCIDENCE OF TAXES ON LAND

#### § 1

#### *The Incidence of Taxes on Land used for Specific Defined Purposes*

It is a commonplace of taxation theory—although it has still to be demonstrated in this book—that a tax on land values in general or the economic rent of all land cannot be shifted. But a tax on the value of land which is used for defined purposes, when the tax does not apply to land otherwise used, is capable of being shifted. Thus, suppose a tax to be levied on all agricultural land used for the production of corn, according to the value of such land, but not on agricultural land used for the production of wheat. In that case land which, at the prevailing prices, could with almost equal advantage be used for the production of wheat or corn and which had been used for the production of corn would be diverted to the production of wheat. In almost any such case there would be some land marginal between the taxed use and others and the way in which such land was used would

be changed by the tax. This means that—in the terms of our example—there would be less corn and a higher price of corn, more wheat and other products raised instead of corn and a slightly lower price for them. It also means that the owner of land who would have to pay a higher tax if corn is grown on it will not permit a tenant so to use it except on condition of a higher rent; while the tenant who can, because of the relative scarcity of the corn induced by the tax, get a higher price for it, can offer a higher rent for the privilege of so using the land. On the other hand, the additional pressure of owners to get their land used for wheat or other crops rather than to produce the penalized corn, and the lower price of wheat, etc., so induced, tend in the direction of slightly lower rents for land not used in corn production.

The net result, then, of a tax on the value or rent of land used in specific ways, but not on all land, is to reduce slightly the rental incomes of all landowners. To be sure, the rent of land used for the raising of corn may be higher than before so that the owner will be no worse off—where the land is marginal between this and other uses—than if the land were used for (say) the raising of wheat. But the extra competition of landowners to get their land into wheat raising, etc., so as to avoid the tax, lessens the rents they can command in these uses. And the rent they

receive if the land (where marginal between uses) is used in corn production, needs not be higher than it otherwise would be by the amount of the tax, but needs only be higher by the tax than the now lower rent it could command in an alternative use. In effect, the tax on land used in some way or ways becomes shifted to or spread among the owners of land used in all ways. It is not shifted upon consumers. For while the goods indirectly discriminated against are raised in price by the tax, other goods tend to be lowered. Consumers of the former goods may lose. But consumers of other goods may gain. If these consumers are of the same class or are the same persons, the results may be regarded as canceling. But landowners, as such, must and will receive somewhat lower net rents. After minor qualifications are made, it remains true that the main burden of the tax is upon the landowners.

## § 2

### *The Incidence of Taxes on Land Values or Economic Rent*

If there remains in the mind of the reader a lingering doubt as to the truth of the contention that a tax on land used for special purposes rests upon all landowners rather than upon other classes, this doubt

will perhaps be set at rest by a consideration of the effects of a tax on land-values-in-general.

The amount of rent which landowners can get for the use of their land is pretty definitely fixed by the conditions of demand and supply. A tax on the rental value of all land, however used, can neither be shifted from one landowner to others nor from landowners as a class to any other class. The reasons are that such a tax can in no wise limit the supply of land or determine the direction of its use. It cannot decrease the supply of land because land, as we here define it, is not humanly produced. If it were, a tax on it might decrease the amount of it and so make rent higher. Since the supply of land is not decreased it follows that, if landowners who lease their land charge higher rents for its use, tenants will endeavor to economize in the use of land and some of the owners will find their land idle and yielding no revenue. These will quickly reduce their rent charges, the more so if unused land is taxed at the same rate as used land, since only so can they avoid loss.

We may state the matter convincingly in a somewhat different way if we call attention to the fact that the landowners were presumably, before the tax was laid, charging all the rent they could get. There is nothing in the tax to make tenants willing to pay more or land more difficult to hire. Supposing the tax



to apply also to unused land, even more land will probably be on the market for hire than would otherwise be the case, because of the loss to owners in leaving their land idle.<sup>1</sup> Hence, owners cannot raise their rents.

To put the matter in still another way, it may be said that rent is the surplus which can be produced by labor and capital above what that labor and capital could produce on the poorest land in use—or, also, on the intensive margin of production—for which no rent is paid and which has either no value or a purely speculative value based on prospects. A tax on the value of land would not increase this surplus yield on the superior land and could not, therefore, increase rent.

Let us suppose that a tax is levied upon a piece of land because of its value, because, that is, of its su-

<sup>1</sup> Even so acute a thinker as Professor H. J. Davenport seems to have been led astray on this point. For he contends that increased land-value taxation, unless 100 per cent. of the economic rent is taken, actually encourages speculation in land, by enabling speculators to purchase land more cheaply. Indeed, Professor Davenport compares land speculation under such circumstances with speculation on the exchanges "on a margin." (See his article, "Theoretical Issues in the Single Tax," *American Economic Review*, March, 1917, page 16.) It is true that increased land-value taxation makes land cheaper to buy. (See § 3 of this chapter.) But this would not encourage buying for speculation. *Taxed land would not rise in price in any greater per cent. on its cost to the speculator than untaxed land. And the annual outlay for holding it out of use would be more.*

periority over the poorest land in use and in proportion to that superiority, and that the owner of the land tries, because of the tax, to charge more rent to the tenant. In that case the tenant may resort to poorer land on which the rent and, therefore, the tax is insignificant or zero and leave without rent and with his tax nevertheless to be paid, the too grasping landowner. Such a prospect or its actual realization must cause the owners of land to keep down their rent charges and to pay the tax themselves.

Since a tax on land values—or on land rent, for this comes to the same thing<sup>1</sup>—cannot raise rents, it can in no way raise the prices which tenants charge for the goods they produce or sell on the land. But can it raise the prices charged by the owners of the land for the goods they produce or sell on it when they themselves use their land? Clearly not. Such owners will not, because of the tax, produce any less of the goods in the production of which they are engaged. Refusing to produce the goods would not relieve them of the tax. They will produce as many goods as if there were no tax. And if the tax does not make such goods any scarcer, their price will not be made

<sup>1</sup> Although the capital value is itself affected by the tax and falls as the tax rate rises, while the rental value is relatively independent of the tax. It is, therefore, simpler to tax economic rent than to tax the capitalized value of land. Indeed, a tax on rent of 100 per cent. would reduce capitalized value to zero.

higher. In other words, if, before the tax is laid, land-owners are charging for their goods all they can get, the tax will not cause them to charge any more for they cannot get any more.

If, then, we look at the matter of general land-value taxation from any point of view whatever, we seem to arrive at the same conclusion, viz., that a tax on land value or land rent is paid by the owner of land and by no one else, that the owner cannot because of such a tax raise either his rent or the prices of his goods, but that, indeed, productive land held out of use by speculators is forced into the market so that, if land rent changes at all, the direction of the change is likely to be downward.<sup>1</sup>

It is, indeed, held by most competent economists that, in general, a tax on land values cannot be shifted. There are, nevertheless, certain qualifications of this

<sup>1</sup> In case a tax is levied on the occupiers, instead of on the owners of land, in proportion to the economic rent or the value of the land, the result, in the long run, will be but slightly different. Demand for land space will tend to decrease. To get their land used to the same degree as before the imposition of the tax, landowners must reduce their rents to a point such that the rent plus the tax is about the same as the rent alone would be in the absence of the tax. In other words, the landowners must bear the tax. The tax is shifted backward by the tenants. But, in case the tax is levied only on occupiers and does not apply to vacant land, there is more of an inducement to hold land out of use than when owners are taxed on used and unused land alike. Hence, the burden on tenants may be slightly greater and the loss to owners slightly less than if owners are taxed on all their land.

principle, some of which are generally familiar to economists and some of which are ordinarily overlooked. The following brief discussion of the problem is intended to indicate somewhat the importance of these qualifications and their relation to the main principle.

It is commonly admitted by economists that a tax on the value of "land" when the so-called land value includes fertility put in and to be put in by owners may be, in part, shifted. For such a tax may discourage owners from thus improving their land. They may prefer to invest their surplus labor—i.e., their labor above that used to provide for current consumption—in some other way. Hence, less acreage may be well fertilized, the supply of goods produced on agricultural land may be smaller and the prices of such goods may therefore be somewhat higher. Here, however, we are really dealing with *capital*, "the produced means to further production,"<sup>1</sup> rather than with land in the economic sense. The tax, if it applies only to capital of this specific kind (fertility), will tend to make people construct, rather, capital of some other kind. Then the comparative scarcity of this kind of capital may be coincident with a comparative plenty of other kinds of capital. (And the

<sup>1</sup> Phrase used by Seager, "The Impatience Theory of Interest," *American Economic Review*, December, 1912, p. 846.

products of such other kinds of capital may be increased in quantity and lowered in price.) But if the tax is applicable to all capital, then there will be no special discouragement of land improvement as compared with other kinds of investment. Whether or not such a tax will discourage saving and hence capital formation in general, is another matter which was considered in the previous chapter and which need not be reconsidered here. It seems clear, at any rate, that a tax levied upon the value of land exclusive of any value put into it by an owner's fertilization, drainage, or other improvement would not be likely to operate to prevent or discourage such improvement and so would not probably be shifted.<sup>1</sup>

But if a tax on land fertility is really a tax on capital value rather than on land value, may this also be true, in some cases, of a tax on the situation value of land? As an almost invariable rule, the situation

<sup>1</sup>The fact that a tax on fertility value can be sometimes shifted, in whole or in part, to consumers, is due to the dependence of such fertility upon the activity of the landowner. Hence, a distinction must be made between agriculture and mining. Fertility is maintained and restored by the effort and investment of the farmer. Ore is not restored by the mine owner. A tax on farm fertility does not at once raise the prices of farm products. It does this only when, in consequence of soil exhaustion, such products have become more scarce. Fertility rent may be a necessary inducement to efficient agriculture. But in the case of mines there is no point to providing an inducement to *restore* anything. It is true that a tax might hasten the exploitation of mines. But, unless it were so levied as to promote wasteful methods, it



value of a person's land is but slightly if at all dependent on his own efforts or investment but is a function of natural advantages and of the activities of those around him. An acre of land in Manhattan may be worth millions of dollars though no owner present or past has ever done anything to give it value; while the same amount of land in the Rocky Mountains or even in the center of the middle western plains may be worth much less despite great efforts by one or more owners to give it value. One owner of land may try in every way conceivable, but without success, to make the situation value of his land great; while another, doing nothing at all, finds his land increasing in situation value because those about him, aided perhaps by natural conditions, make such improvements or develop such businesses that the locality where their activities are carried on comes to be a locality where people desire to settle for business

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would not decrease the total amount of coal or ore mined. Higher prices might result in the future because of earlier mine exhaustion. But, if so, the more active present exploitation of the mines would mean *lower* prices in the present. If the prices of mine products are *lower* while the tax is on and higher when there is no tax because nothing is left to tax, we can hardly say that the tax is "shifted" to consumers. As a matter of fact, heavy taxation of mines need not at all interfere with conservation of mineral resources. If some mines were exploited more rapidly, this would tend to delay the exploitation of marginal mines. Furthermore, such taxation would tend to keep down the capitalized value of mines and to make their purchase by government easier, if special conservation measures seemed desirable.



or residence. If it should become obvious that, on a given city lot, a house could be built for \$6,000 which would then sell, with the lot, for \$10,000, the lot would at once be worth approximately \$4,000 without the house. The building of the house does not add to the situation value of the land as such. After the house is built, there is a greater real estate value by the value of the house, but the land, separately considered, is worth the same as before. If, however, several scores of persons build attractive homes in the immediate neighborhood of such a lot, it may come to have a higher situation value whether sold with or without a building upon it, than it would otherwise. Each such builder, while adding to his own real estate a value presumably about equivalent to the cost (including planning and supervision of construction) of his building, may add to the situation value of neighboring real estate by making the location more attractive to others than before. Thus the unforeseen tastes and the consequent building activities of some persons may increase the salable value of the land of other persons. In like manner, if certain business men choose a given block for retail stores, the habit so induced in the buying public of going to that locality to trade may give value as a store site to a lot not purchased or owned by the persons responsible for the new state of affairs.

It may, indeed, conceivably, sometimes happen that development of real estate owned by a score or more of separate persons, which none of them would find it worth while to begin independently on his own land, would seem worth while to a single owner of all the land, or to an association of owners, since the development of each lot might add something to what he or they—and not persons who had not participated—could get from neighboring lots. Thus, a large corporation may, in effect, found a city and realize a gain from the resulting increase in the value of its land, as the United States Steel Corporation seems to have done, to a considerable extent, in the case of Gary, Indiana.<sup>1</sup> But if there were several persons or corporations able to finance such a comprehensive improvement and fully aware of the opportunity available, then the gain imputable to the improvement would be less. For the salable value of the land prior to the improvement would be more. For these various potential improvers would, each, be willing to offer more for the unimproved land, because of their ability profitably to improve it, than it would otherwise be worth or than it would bring if sold, thus improved, in small lots.

To forestall possible misunderstanding and objec-

<sup>1</sup> See Haig, "The Unearned Increment in Gary," *Political Science Quarterly*, Vol. XXXII (March, 1917), pp. 80-94.

tion, it may be well to explain the fact that buildings are sometimes constructed (e.g., in large cities) although the immediate yield on the total investment (land and building) is small, in anticipation of a rise in rental and capital value. As has been noted above, development through extensive building, etc., may sometimes be undertaken in the belief that site values as such will thus be increased. But if the increase of site values is expected to result rather from the general growth of the community—in the main, the usual condition—then such building will not be prevented either by a general tax on site values or by a tax on site value increments. Though the immediate yield on land and building together may seem small, the building is constructed because, and only because, it is believed that the net yield in excess of what would be received were it *not* constructed is as high as the general rate of return on investments of equal risk. Otherwise erection of the building would be *postponed*. Certainly an expected increase in site value due to the general growth of the community is no inducement to the early construction of a building, since such site value could be realized by holding for later sale, without building. An owner who builds now because he does not wish to forego the *present* rental yield of his land is not building to get a future increment. And such an owner would be in *no less*

*a hurry to build* in order to avoid a *present* land-value tax. Certainly a tax on community-made site value would not delay construction of a building, since the tax payment to be made by the owner would be as great in case he did not build as in case he did. Indeed, it is to be noted that *the very reason immediate returns are low* in proportion to total capitalized value of land *and* building is because the prospective future high value of the land is capitalized into a high present value on which the current rate of return cannot at once be realized. If this future increase were to be taxed at a high rate and if the fact were generally known, the present value of the land would presumably be lower. Even with the tax, therefore, the percentage yield on present value would be no less.<sup>1</sup>

The writer has frequently heard the argument advanced that a prospective increase in the value of their land is necessary to keep farmers in their business—that without this increment they would not get the current rate of return. (Is it equally necessary in every business? Without it would every one leave his own business and go into another business where, also, he could not get it!) In truth, however, were

<sup>1</sup> Various views have been presented by different economists on this and related points. A number of these are briefly stated and admirably criticized by Professor H. J. Davenport in "Theoretical Issues in the Single Tax," *American Economic Review*, March, 1917. See, especially, pp. 17-24.

land values taxed, or even were future increments taxed, the yield to farmers would be as large a percentage of what their land would then sell for—a larger percentage if we assume a corresponding reduction of other taxes—and they would be no less inclined to remain in the business, as against selling out (to some one who thereupon comes *into* the business?) or otherwise quitting, than before.

As a concrete case of improvement where the activities of landowners accomplish something toward the increase of situation value, let us suppose a group of men owning a considerable amount of undeveloped land remote from markets and railroad centers. We shall suppose, further, that potential traffic to and from this territory does not appear large enough to pay the ordinary rate of return on the cost of building a railroad into the territory (or, perhaps, any return whatever) and, hence, that no one is willing to build such a road for the promise of earnings upon it. Let us assume the probable product of the land to be wheat. A railroad into the territory would be worth much more to persons cultivating immediately adjacent land than to persons farther from the railroad and the former persons could afford to pay higher rates than the latter. If rates for the transportation of the same kind of freight (in our example, wheat) could be made higher for shippers located near the



railroad than for shippers who must bring their wheat longer distances by wagon or truck, then, we may suppose, the railroad could be made to pay. But such special rates to different shippers for the same service would be difficult to adjust even if they were not illegal. Hence, although the railroad may be worth building so far as the owners of the land, as a whole, in the given community are concerned, it may not be to the advantage of any other persons to build it and its building may have to wait upon investment by these owners in rough proportion to their anticipation of gain from it. In such cases, the building of a railroad by these owners corresponds, in a sense, to the fertilizing of his acres by a farmer or to the building of a store on his land by the owner of a city lot. It is an improvement on the land, the added value being, in large part, represented by the cost of the improvement.<sup>1</sup> If there were a thoroughly competitive market for the sale of such a large land territory *as a whole*, then its value, *before the construction of the railroad*, would be approximately as great as after, except for the cost of construction. (We are here assuming that the railroad would just yield running expenses and could only be built because of the increased salable value of the adjacent real estate.)

<sup>1</sup> Cf. Marshall, *Principles of Economics*, sixth edition, London (Macmillan), 1910, p. 444.



In a sense, therefore, the increased land value must really be regarded, in this case, as capital value, as being merely equivalent to the cost of the capital put *into* or *upon* it by the owners. Yet, in practice, probably if the land were under a single ownership and certainly if it were or came to be owned by different persons in separate tracts, these different tracts would be separately valued; and the value of any of them, though enhanced by the presence of the newly constructed railroad, would seem to be purely situation value—as indeed it really would be in the case of any such piece of land if neither the present nor a previous owner had contributed toward the building of the railroad. But to tax this value *when it is brought into existence through capital construction by the owners of the land so improved* may operate to prevent such capital construction and such a tax may be, in some degree, shifted.

On the other hand, the economic consequences of such construction may often be unfortunate, so that the discouragement of it, by land-value taxation, would do no harm. Thus, suppose one very large tract of land under a single ownership and control on which, therefore, any increased situation value due to the construction of (say) a railroad system, will be enjoyed by the same persons who have the railroad built; while in other parts of the country, land is

separately owned in small tracts and no one person is in a position to reap the situation value which might result from similar railroad building. Under such circumstances population and industry might be largely drawn away from the territory held by many small owners into the territory controlled by one large owner; and they might be so drawn even though the latter territory had no natural advantages over the former and even though the former, if not thus denuded of population and business, would soon be able to support a railroad built without the inducement of a prospective situation-value increment. It is not an unreasonable hypothesis that the building of railroads subsidized by the United States government with enormous grants of land, thus uneconomically and prematurely developed the West at the expense of the development of the East; and this merely because of the greater concentration of ownership of large areas of western land, first in the hands of the Federal government and later in the hands, also, of a few railroad companies.<sup>1</sup>

It is, of course, impossible to say what per cent. of the apparent situation value of land is really, in

<sup>1</sup> The agricultural pioneer is said by some economists to have had a prospective "unearned increment" as an inducement to settle new territory. And it is quite possible that in the absence of such inducement, settlement in such territory would have been less rapid. Nevertheless, it by no means follows that the early ap-

the sense above indicated, capital value. Doubtless there are instances of contributions by landowners in various towns and cities to the building of electric street-railway lines, steam railroads and other utilities (through purchases of stocks and bonds or otherwise), which contributions they would not be quite

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plication of heavy land-value taxation would, by retarding such settlement, have been shifted upon the general public. Would it have meant less wheat or corn? But undoubtedly some of those who took up western agricultural land in the pioneer days were already farmers and merely raised wheat and corn in the West *instead of* in the East. If they could not be induced to go West except by the prospect of an increment in land values, can we conclude that their labor in the West was much more productive, that their going increased the volume of produce and that not to have given this encouragement would have made agricultural produce more scarce and its price higher?

Some of the western settlers, however, were persons not previously engaged in agriculture. If the offer of land and the prospect of a rise in the value of this land made them farmers, it would in so far increase the volume of wheat, corn, etc., and tend to lower their prices. *But it would simultaneously decrease the volume of whatever other goods or services these people were producing and raise the prices of such goods or services.* Who can say with certainty, therefore, that a tax on land values which removed the incentive to such settlement would necessarily have been shifted upon consumers of goods, in general, in the form of higher prices?

But would such a tax have been shifted upon wage-earners in the form of lower wages? The prospect of enjoying a rise in value of land given to settlers by the government is said to have depleted the supply of hired labor and kept wages up. (Clark, *The Distribution of Wealth*, pp. 85-86.) This effect, however, was only temporary. To-day wages may even be lower because of the policy formerly pursued, if, because of it, less land remains unappropriated. And it is not certain that a policy of land-value

induced to make merely because of their expectation of a return on the utilities as such, from the rates charged, but which they are induced to make because of their hope of an incident increase in the value of their land. They are, as it were, by a common yet voluntary<sup>1</sup> action, improving their land out of savings; and a special tax upon the increased value so brought into existence might prevent their doing this, tend to diminish the supply of the kind of utility or capital in question, and, perhaps, necessitate higher rates as an inducement to investors to construct such capital. Thus, in so far, such a tax would be shifted. It is likely, however, that in the case of a regulated monopolistic utility the public would be asked to permit rates—if such rates could be charged and patronage kept—high enough to yield the usual rate of return on investment; and this even if the investors had enjoyed an incident increase in the value of their land.

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taxation would, even temporarily, have prevented the realization of high wages. For while it would have weakened the incentive to laborers to take up *government* land far from the centers of population, it would have discouraged speculation in *privately owned* land and so would have increased opportunities near the centers of population. Exactly what the net effect would have been we cannot, with certainty, determine. But the incident reduction of other taxes could hardly fail to be a benefit to wage-earners, especially when they were ambitious and saving. (See §§ 3 and 4 of this chapter.)

<sup>1</sup> Except as they may act in response to pressure from the local commercial club *et al.*

In any case, it is probably true for the most part, as has been frequently and vigorously contended, that the situation value of any given piece of land is due to natural conditions, such as the proximity of bays and inlets, to the stage of the mechanic and other arts which makes one or another location preferable for various lines of productive activity, and to the activities and groupings of large numbers of people, and that what an individual owner decides to do or not to do is but an insignificant factor. The conclusion, therefore, that a tax on the situation value of land cannot be shifted, though it may require some qualification, is, in the main, hardly open to serious question.

Whether or not it is desirable to take much or all of economic rent by taxation, it should be clear that, under the competitive individualistic system of business, no other method of preventing the individual receipt of economic rent is possible. If, for example, when the owner and user of a piece of land were different persons, the owner could be forbidden to charge as rent the surplus, due to advantageous situation, yielded by that specific piece of land above the ordinary returns to labor and capital, the user would proceed to appropriate such surplus. For the fact that the titular owner was not allowed to charge rent would not increase the supply of the goods produced



or marketed on the land, and, since price is fixed by demand and supply, would not lower the price of such goods. The producer or dealer who was fortunate enough to have, for nothing, the use of a piece of land so good or so advantageously situated as to give him a larger return than would cover his outlays for wages and interest (including interest on his own capital) and pay for his own time, would not, on that account, sell his output below the market price charged by competitors. But even if he did, his competitors need not lower their price, since there has been no increase in supply or decrease in demand, and since, therefore, the demand on other producers or dealers by consumers remaining unsatisfied, will be as great as before. So, even if the favored producer does lower his price (as it is safe to say he will not), that would merely pass the favor to a *privileged few* of the consumers of the article. The price could not be reduced to all consumers unless reduced by all other producers.

Furthermore, some of these other producers are producing under conditions such that their labor and capital produce little or no surplus for rent; they may be, for instance, producing on land so poor for the purpose that it yields substantially no surplus.<sup>1</sup> For them

<sup>1</sup> Or they may be producing on what economists call the intensive margin.



to reduce their price would be to curtail their wages or interest or both. In that case, the attempt to terminate rent would result in lessening other kinds of incomes of the producers of the goods in question and giving these incomes to the consumers of the goods. But these consumers can be no other than the producers of other goods. The injured producers would, therefore, under a régime of free choice of industry, change their occupations and the line of their investment.

It is perhaps desirable to add an illustration from the economics of railroad transportation. Suppose two cities to be connected by a railroad which runs through a narrow river valley. The traffic is more than this line can handle. Another line is essential but the second has to follow a winding and hilly route. The cost of carriage of goods on the second road is necessarily higher. The first road has an advantage of situation. It has an exclusive use of the better route, from which it derives a substantial revenue. For it can and will charge rates as high as does the winding hilly road and will still get plenty of traffic. To require rate reduction of the first road will not transfer this excess income to the general public. For, since this river-valley road cannot carry all of the traffic, some shippers, at least, must pay rates high enough to make worth while the operation of the other railroad. Otherwise it will

be abandoned—or never built. And to reduce rates only on the river-valley road is merely to transfer to a favored group of shippers, and not to the whole public, this road's revenue from a natural advantage of situation and from the growth of the community served. The excess income of the river-valley road is situation rent. Taxation of rent by the public can be made to secure, for the general benefit, as much of this income as it is desired to get. Rate regulation cannot.

### § 3

#### *Taxation and Capitalization*

A tax on land values or economic rent, like a tax on the net profits of a monopoly, cannot be shifted. But either tax can be capitalized. What, then, is capitalization and when is a tax capitalized? The process of capitalization is a process of giving a present value to a prospective income. This process involves an application of the rate of interest. Thus, suppose the rate of interest which can ordinarily be realized from an investment of capital to be 6 per cent. Then the stock of a concern which gave promise of an annual yield of \$12,000,000 would have a salable value of \$200,000,000. Let us suppose the concern in question to be a monopoly doing business on an actual original investment of \$100,000,000 on which a normal competitive

return would be \$6,000,000 a year. The ability to charge a monopoly price and reap a supra-normal return makes the stock of the monopoly, in this case, worth \$100,000,000 more than the original investment in wealth-producing equipment. Assume, now, a lump sum tax (or a proportional tax on monopoly profit) taking \$4,000,000 of the profit. Then the returns remaining will be only \$8,000,000, and the salable value of the stock will tend to become \$133,333,333.33  $\frac{1}{3}$ . For \$133,333,333.33  $\frac{1}{3}$  is that sum of which \$8,000,000 is 6 per cent., and investors cannot be expected to pay much more for stock from which they can hope to derive, because of the tax, but \$8,000,000 a year, so long as they can invest their funds otherwise with equal security and realize 6 per cent. The expected future income of the monopoly is capitalized into a present salable value. The prospective taxes are capitalized into a subtraction from that value. Or, the future net returns expected to remain after payment of the taxes are capitalized into a present salable value smaller than this value would be if there were to be no taxes.

A tax on land values, like a tax on net monopoly profits, is capitalized. If an increased tax were to be levied on land values or land rent, land would decline in value because the net rent to its owners would be reduced by the tax—a tax which, as we have seen,

cannot be shifted. For the value of land, unlike the value of capital, has no relation to its cost of production. Land as we are here defining it (to exclude improvements, which are really capital), has no cost of production. Its value can be arrived at only by knowing or estimating its future rent (or surplus yield over interest on capital and remuneration for labor), and capitalizing this future rent at the market rate of interest.

To illustrate, if a piece of land is expected to yield \$100 a year, for an indefinite future, in excess of the wages of the labor and the interest on the capital used upon it, and if the market rate of interest is 5 per cent., the land will be valued at \$2,000. A tax which should take each year \$75 from the \$100 previously left to the owner, leaving him a net rent of only \$25 a year, would reduce the value of the land in as great a proportion, i.e., to \$500. The annual yield to the owner after the tax would be as large a percentage as before of the price at which his land could be sold. Hence, he would have no more motive to sell the land than he had before and he would continue to do with the land exactly what he would do with it if there were no tax.

The fact that a tax upon land values or economic rent is capitalized, thus resulting in lower land prices, constitutes one of the principal arguments commonly advanced in favor of such a tax. Lower land prices

tend to make land and home ownership easy for persons of small means and so are likely to diminish tenancy. Taken in connection with an incident decrease of other taxes, and a possible raising of the marginal product of labor and wages through forcing into use land speculatively held out of use, land-value taxation would not only cheapen land but would leave larger than before (because less taxed) the incomes of non-owners who might wish to save and to buy land.

Such a tax, so far as all future purchasers of land might be concerned, would be an entirely burdenless tax. For the tax would so lower the salable value of the land that it could be entirely paid out of the interest on the saving in the purchase price. And the reduction in other taxes so made possible would involve a clear net gain to all future purchasers of land, as well as to tenants and laborers. The accumulation of a competence by the industrious and ambitious would be in so far made easier. A change in taxation policy in the direction of taxing the economic rent of land more and other incomes and property, as well as commodities, less, would have some tendency, then, to protect persons who through sickness, financial reverses or otherwise have been reduced to poverty, or the descendants of such persons, against the possibility of falling as low in the economic scale as they otherwise might. The obstacles to be surmounted in the process of their

economic rehabilitation would be less. Such a change would be, therefore, in some degree analogous to the abolition of debt slavery and to the establishment of bankruptcy laws.

Objection is frequently made, however, to increase of land-value taxation on this same ground, viz., that it would lower the selling value of land. The owners of land at the time the change in tax policy was introduced would not, in every case, pay higher taxes. Many of them would even find themselves paying lower taxes and retaining larger net incomes. For the reduction made possible in their other taxes would make up and more than make up for the increased taxes on their land. Such owners, so long as they continued to hold and to use their land, would not suffer because of the change in tax policy. Even should they sell their land intending to buy other land in its place, their loss as sellers would be compensated by their gain as buyers. But should they sell their land for money to spend in current enjoyment or in the satisfaction of current needs, they would be worse off because of the tax. Their land would exchange for a less amount of current consumable goods. Owners of vacant land or of land but slightly improved would not only find the salable value of this land reduced, but would also, as a rule, find their net incomes reduced. For in their case a lowered rate of taxation on other property—since they



own very little of such property—would not be felt as a compensating advantage. The opponents of increased land-value taxation urge, therefore, that such taxation must needs trench on the long-recognized vested rights of landowners, and that society, having permitted individuals to buy land on the assumption that no special tax would be levied on its rent, may not fairly adopt a new policy.

The counter argument of an advocate of increased land-value taxation might be to the effect that the general welfare is the end which should be constantly held in view, that so-called private rights which interfere with policies favoring this welfare must not be too greatly protected, and that society is not under obligation to maintain an unchanged policy even although such an unchanged policy has been counted on by purchasers of land. A purchaser of land, such an advocate of greater land taxation might say, in buying the land buys, in effect, merely the previous owner's claim to the prospective rent, and his purchase must be assumed to be made on the understanding that society can make at least gradual tax changes in any direction which may seem wise. The purchaser of land, he might assert, buys a claim not to a definite future rent but to an indefinite future rent subject to the vicissitudes of tax changes as well as of changes in population and situation advantage. It may be reasonable

for him to assume that none of these changes will occur suddenly, but it is perhaps to be doubted whether society can be regarded as having impliedly pledged itself that any of them, e.g., a change in tax policy, shall not occur at all.

It must, indeed, be admitted that, whether justifiably or not, society has from time immemorial made tax and other changes disappointing the expectations of various persons. Thus, it has made tax laws disappointing the expectations of accumulators of fortunes who had expected to transmit them practically entire with no appreciable inheritance tax. It has introduced regulation of the rates of public service industries after investors have bought stock on the basis of past monopolistic earnings. And it has made laws disappointing the expectations of capitalists engaged in manufacturing and distributing spirituous liquors. No opinion is here expressed as to the justification or the desirability of such regulation and laws. But it can be easily seen how an advocate of increased land-value taxation might draw from them the conclusion that future changes of various sorts are not unlikely, that landowners may be regarded as having purchased somewhat indefinite rather than absolutely definite rights in the future rent of their land, and that society is not estopped from making such future changes in policy as may promise to be generally beneficial.

The question of what policy *is beneficial* may be, of course, itself subject to dispute. Even if "the general welfare" is admitted by all disputants to be the goal of public policy, there may still be disagreement as to what this welfare consists in and what it is furthered by. Some will think of a considerably stratified society as really the "best"; some will want absolute equality; some will desire to give "opportunity" to all; some will think the general welfare coincident with the welfare of the "wage-earning class" or of the "middle class." And it might even be impossible to get an agreement that "the general welfare," if seeming to be opposed to some previously accepted ethical standard, should be regarded as an ultimate goal.

We have here illustrated the fact that from the same analysis of cause and effect relations, persons of different sympathies and points of view can draw widely different conclusions as to what is desirable public policy. Three students of economics might agree entirely as to the incidence and capitalization of a tax on land values. Yet of the three, one might favor immediate substitution of land-value for other taxation; the second might favor gradual change; and the third might feel that due consideration for the rights of present owners would negative any change at all. Doubtless in some cases persons holding each of these views are convinced

that the policy they favor is right because of its probable effect on the public welfare. In many cases, however, though often unconsciously, the view held is based on a sort of intuitive<sup>1</sup> philosophy of ethics. Land-value taxation is perhaps supported, by some of its advocates, because of a belief in a "natural right" of each person to a share in the land; and it is opposed, frequently, because of a belief in a similar kind of sacred right of an owner of property not to have that property reduced in value by a change in public policy.

Some economists who have accepted the view that increased general taxation of land values is unjustifiable because it decreases the selling value of land and so causes loss to present owners of land, have nevertheless favored the special taxation of *future increases* in the value of land. This limited advocacy of increased land-value taxation has, they have believed, freed them from the suspicion of advocating anything which might destroy any "vested rights." And, indeed, if future increases were never expected or calculated on, this view would be correct. But, in fact, as everybody knows when he is buying or selling real estate—though

<sup>1</sup> It is admitted, however, that the common-welfare basis of ethics is intuitive, *in a sense*. To one who has no social sentiments, inborn or acquired, no argument for society-regarding or other-regarding as against purely selfish action can be addressed except such arguments as ostracism, jail, and the hangman's rope—i.e., only selfish motives can, in such cases, be appealed to.

many economists and some economists of distinction do not seem to be conscious of it when they are writing economics—the price of any given piece of land to-day is as much a function of expected future increases in its salable or rental value as it is a function of its present rental yield. Hence, if it became known and generally believed that a special tax was to be levied on these future increases, the *present salable value* of land would thereby be reduced. It follows that if increased *general taxation of land values* involves an illegitimate interference with vested rights, so does any new and hitherto unexpected tax on future land-value increments. For it is mathematically possible to arrange a gradual general increase in land-value taxation, culminating in the extremest form of “single tax,” which would lower the present salable value of land no more than would a prospective tax on future increments. In the long run, of course, the increased general land-value taxation would make land lower in price. But the average loss to present owners would not necessarily be greater. It is not desired, however, in this book, to express opinions as to the “legitimacy” or “illegitimacy,” the “morality” or the “immorality” of any tax. The purpose is merely to set forth, as clearly as possible, the probable incidence and some of the most important probable consequences of taxes of various kinds. It is believed, however, that the setting forth of this inci-

dence and of these probable consequences will be helpful to those who have no other prejudice or bias than a prejudice—if it can be called such—in favor of the scientific method, and a real concern for the general well-being.

#### § 4

##### *The Incidence of a Purely Local Land-Value Tax*

If, in one community, taxes are levied, on land-values, much higher than in neighboring communities, and if the funds so raised are wastefully used and do not conduce to the reduction of other taxes, the entire burden falls upon the landowners in the community where the increased land-value taxation is levied. Their rental incomes are reduced and, as we have seen, they cannot shift the burden upon tenants by charging higher rents or upon consumers of goods by charging higher prices. And no loss will fall upon landowners in other communities where the increased land-value tax has not been applied.

But what if the increased land-value taxation results in diminution of taxation on other values? Then the community in question tends to become a more advantageous place for people to live and work and to invest their savings. Their untaxed (or less taxed) labor incomes will tend to be larger than the net labor in-



comes remaining after the payment of taxes in other communities. Their untaxed (or less taxed) incomes on capital invested will tend to be larger than would be their net incomes from capital in other communities after paying taxes. Although land is taxed at a higher rate, this does not enable owners to charge higher rents and it may conceivably, by discouraging speculative holding of land, make rents lower. Also, to all new buyers of land, the increased tax which they will have to pay on it after purchase, tends to be offset by a lower purchase price. The expected future tax is, as we have seen, capitalized.

But these advantages to laborers and investors of capital in the community in question, which they do not enjoy in neighboring communities, may not, therefore, be permanent. Their purely local existence stimulates laborers and investors to move into and invest their capital in the community which taxes land more and other values less. This tends to lower the margin of production and to raise rents and land values in that community. It tends, somewhat, to raise the margin of production and to lower rents and land values in those communities from which the labor and capital are flowing. When equilibrium is restored, the burden of the local land-value tax will have been distributed in part upon the landowners of neighboring communities in the form of lower rents. If, however, the new sys-

tem were nation-wide such inflow of labor and capital would be very gradual. The inflow of labor, if not desired, could be limited by immigration laws.

## § 5

### *When Is a Tax Capitalized?*

When is a tax capitalized? Does the process of tax capitalization apply to any tax? In the sense in which the term is commonly used, it does not. Thus, it does not, assuming production under conditions of constant cost, apply to a tax on cigars. The producers of the taxed cigars will, in large part, go out of the business of cigar making unless they can charge a higher price than before. If and so far as they thus shift the tax upon consumers, their net returns from the business done are unaffected, the income on investment for those who continue in the business is unaffected and hence, in like degree, the salable value of the land and capital used in the business is unaffected. The tax cannot be capitalized into a smaller value of the business unless the tax decreases the net earnings of the business. If the tax is shifted entirely upon consumers, and net earnings in the business remain as before, there can be no tax to capitalize—at least so far as the business is concerned.

Can such a tax, then, be capitalized by consumers? Clearly, the real incomes of consumers, as such, would be diminished by the tax. But can the salable value of these incomes be affected? It would appear that, in the type of community with which we are familiar, they cannot—unless by imaginative construction. For such incomes are not currently salable. An individual sells the claim to the future income from his bonds when he sells the bonds; he sells the privilege of enjoying the prospective income from a monopoly in which he owns shares of stock when he sells the stock; he sells the prospective rental yield of a piece of land when he sells the land. But he does not sell the claim to his entire future income and this claim is, therefore, not quoted and has no definitely assignable market value. It can hardly be said that here is capitalization in the usual sense. For practical purposes, therefore, we may say that a tax which is shiftable upon consumers cannot be capitalized. To be capitalized a tax must rest, definitely, upon a salable income. A tax on the net returns of monopoly—as on the economic rent of land—does so rest. Such a tax cannot be shifted; it does clearly diminish the returns of the monopoly—or the land; and, therefore, it diminishes the present salable value of such future returns.

It has been authoritatively asserted that, to be capi-

talized, a tax must be exclusive,<sup>1</sup> by which is probably meant that it must bear on some incomes from property and not on all. But is it certain that tax capitalization necessarily depends on the exclusiveness of the tax? Let us attempt to reach, on this problem, as definite a conclusion as possible.

Suppose, then, first, a non-shiftable tax of 2 per cent., on all income from some special kind of property, e.g., land or the securities of a monopoly, reducing the net income to (say) 4 per cent. of what had been the capital value of the property prior to the tax, while returns on investments in general remain 6 per cent. Then, if the tax, being exclusive, is capitalized, the salable value of the taxed property must fall to such a point that the net income remaining after the tax, is as large a per cent. of this value as can be realized on other investments of equal security.

What will happen, however, if the tax applies equally to the income from all property? The argument that such a general tax on property cannot be capitalized is based on the belief that the income from all property

<sup>1</sup> Seligman, *The Shifting and Incidence of Taxation*, fourth edition, New York (Columbia University Press), 1921. But in a recent article on "The Effects of Taxation," in the *Political Science Quarterly* for March, 1923 (article running from page 1 to page 23; specific point here referred to, on page 9), Professor Seligman expresses a different view.

is reduced to a 4 per cent. basis; <sup>1</sup> and that the prospective buyer of any special kind of property will not require a lower price than before as a condition precedent to purchase since he can find no better alternative.

But the conclusion that such a tax cannot at all be capitalized depends upon the somewhat questionable and perhaps unconsciously made hypothesis that a tax on capital or the income from capital will not decrease saving. Supposé, however, that as a result of such a tax owners of capital equipment which now yields, net, 4 per cent., instead of 6, most of whom would presumably rather possess their capital for the sake of the 6 per cent. a year than to "live it out," are in large part unwilling to hold it intact for only 4 per cent. as compared with selling it for its former value or even somewhat less in terms of immediately consumable goods. Suppose, also, that persons who would have been willing to save and so make possible further increase of capital for a 6 per cent. return are not in general willing to do so for 4 per cent., and that persons who would be willing to produce a surplus of consumable goods beyond their own needs with which to buy capital yielding 6 per cent. are not willing to do so for the purchase of

<sup>1</sup> This does not mean that the more risky investments may not yield more, so compensating for the greater risk; but it does mean that there is no escape from the tax by investing in some other way, because all interest returns are taxable.

capital yielding 4 per cent. If a sufficient number of persons are so affected, the result of the tax must inevitably be less accumulation and a higher interest rate than otherwise. Accumulation of capital will then decrease and may come to an end. It is conceivable that the amount of saving done will not even suffice to replace existing capital as it wears out and that the amount of capital will become absolutely less. Suppose that, even with no saving at all being done for the time being, and with all efforts being devoted to the production of immediately consumable goods rather than durable capital, the output of such immediately consumable goods in excess of what the producers keep, is not sufficient to satisfy the demand of owners of capital who are now willing to dispose of their capital at less than its former price in order to get such goods. Then the rate of interest and, therefore, of discount is temporarily higher than the ratio of marginal productivity of capital to its cost. In that case all capital would temporarily be of less salable value because of the tax and the tax is, in so far, temporarily capitalized.

But such a consequence of a tax on the income of all capital, only remotely possible even temporarily, could not possibly be permanent. If such a tax operates to diminish saving, the amount of capital in existence will come to be less than if the tax did not exist and its marginal productivity will come to be greater. Even-



tually the rate of capitalization or discount by which a future income is translated into a present value must come to be the same as the ratio of the marginal productivity of capital (in excess of taxes on it) to its cost. And in the long run capital instruments will not be produced to sell for less than their cost.<sup>1</sup> When the ratio of net marginal productivity of capital to its cost has become large enough so that it seems worth while again to produce it, the value of such capital will again be equal to its cost and will not be less than before the tax was laid unless its cost has become less. But what is the fact regarding the value of the securities of a successful monopoly or regarding the value of land? These values were previously, it is to be supposed, much above cost of production. The land (land in the economic sense as distinguished from improvements) had no cost of production but was a free gift of nature. Its value might fall greatly before reaching the cost of its production, viz., zero. The value of a monopolistic business could also fall greatly before reaching a point at which the entire plant could be duplicated. A permanently higher interest rate would mean, therefore, capitalization or valuation of the property at a higher rate of discount—or a lower value of the property.

<sup>1</sup> For a development of the idea of cost of capital goods in this connection see the author's book, *Economic Science and the Common Welfare*, Columbia, Missouri (The Missouri Book Company), 1923, Part II, Ch. IV.

Since the value of equipment goods produced is fixed by their cost of production and cannot for long be either much more or much less, a tax on such goods is relatively unlikely, as a long run proposition, to be capitalizable. But land and monopoly values may decline greatly as a consequence of taxation which decreases the net income from such property while simultaneously causing so great a decrease of capital accumulation as to keep the net rate of interest on capital equipment somewhere near its former level. If a tax on the income of all property does so operate, i.e., if it does tend to decrease capital and so to increase interest, leaving net interest on capital, after the tax is subtracted, not much lower than interest prior to the tax, but decreasing the net yield of monopoly and of land, then the tax, so far as these latter types of property are concerned, will be capitalized. We may conclude, therefore, that the fact of a tax being general on all property is at least not conclusive against its capitalization.<sup>1</sup>

<sup>1</sup> Cf. note by H. G. Hayes, in the *Quarterly Journal of Economics*, February, 1920, pp. 373-380, entitled "The Capitalization of the Land Tax," especially p. 376.

## § 6

*The Incidence of Taxes on Land  
According to Quantity*

We have seen that taxes on land values cannot be shifted and that, therefore, they are capitalized into a lower salable value of the land. But the same conclusion would not be justified in the case of a tax on land of a fixed amount per acre regardless of value. Such a tax may be shifted, at least in part, to consumers. Thus, a tax on land in proportion to area would compel the abandonment of land at the margin of cultivation, so-called marginal or no-rent land. This would limit the output of those goods to the production of which the abandoned land had been devoted and would tend to raise the prices of those goods. Some lines of business are carried on almost exclusively on supra-marginal land, e.g., merchandising. These industries would be directly affected relatively little by the tax. A tax of \$10 an acre each year on wheat, corn or cotton land would be heavy; on the land used for a department store in a great city it would be insignificant. The tendency would be to drive men out of the lines in which large areas of cheap land are used into the lines of activity in which a small area of valuable land goes a long way. The goods produced in the former lines tend

to rise in price. The goods produced in the latter lines, since the tax does not cause more money and credit to be spent, tend to fall in price. And since slightly smaller money incomes are thus received by producers in these latter lines, they will consent to take slightly smaller money incomes in the taxed line than before, the price of the good (or goods) produced in the taxed line (or lines) not rising by quite the whole amount of the tax. But the rent of land will not be depressed in proportion to other money incomes and may even rise. If the tax drives industry to some extent away from near-marginal land, it in so far increases the demand for the use of better land and tends to increase the proportion of the total output going for rent.<sup>1</sup>

The effect above indicated as likely to result from a tax of a given amount per acre on all land is very nearly what would probably result from a tax per acre on all agricultural land. A fixed tax per acre is so insignificant in relation to any business carried on in a city on a relatively small plot of land that it may almost be ignored anyway. A fixed tax per acre which is not general differs from a general tax in that it may divert some land from the taxed use to other uses. But a fixed tax per acre on all agricultural land, while it may cause some of this land to be diverted to other uses,

<sup>1</sup> Lower real wages might eventually affect population, thus causing the burden to be partly shifted back upon landowners.

will not cause much of it, if any, to be diverted to city uses. Much of what has been said, therefore, in economic discussion, about taxation of *agricultural* land at a fixed rate per acre, might be said with slight qualification about taxation of *all* land at a fixed rate per acre.

A tax of a fixed amount per acre may not be entirely shifted even if demand for the goods produced on marginal land is absolutely inelastic, unless consumers are practically dependent, for a considerable proportion of the supply, on the output from marginal land. Suppose, for illustration, a tax of \$1 an acre on all land. If the amount of wheat which can be produced to advantage on marginal land is 10 bushels an acre, if demand for wheat is inelastic, and if a large part of the required output comes from marginal land, then the price of wheat must rise, because of such a tax, by approximately \$1 for 10 bushels or 10 cents a bushel. Otherwise the marginal land will be in large part deserted and the wheat will not be produced.<sup>1</sup> But if only a small part of the required wheat comes from marginal land, a rise of price of less than 10 cents a bushel—e.g., a rise of 4 cents—may make worth while the more intensive cultivation of supra-marginal land.

<sup>1</sup> It is admitted that where capital has been invested in, or on this land, the immobility of the capital may operate to delay desertion of the land even though the tax cannot all be shifted,

The increased wheat production on the better land might, therefore, make the entire production sufficient to meet all requirements, without the use of what had been the marginal land.

## § 7

### *The Incidence of Compound Taxes*

So far we have discussed the incidence of taxation reduced to its simplest terms. That is to say, we have considered separately the incidence of taxes on commodities, taxes on monopoly profits, taxes on wages, taxes on capital or its interest and taxes on the economic rent of land. In doing this we have laid the foundation for an understanding of the incidence of taxation as actually levied. As actually imposed taxes are, frequently, not simple but complex. Perhaps they should be simple. But whether or not they should be simple, in the main they are not. Thus, in place of a single tax on land values or on capital as distinguished from land, we have the so-called general property tax. This tax, to be sure, is not levied on the wages of labor. But it draws, at any rate in the first instance, from both the interest on the taxed capital and the rent of the taxed land. In applying, also, to such consumption goods as household furniture it draws from the use-interest of the consumers or owners of it.



What shall be said of the incidence of such a tax? Merely that its incidence is a compound of the incidences of its several component parts. So far as it is a tax on land values, it rests upon the owners of the land and cannot be shifted upon any others in the form of higher rent. So far as it falls upon capital, it diminishes the net per cent. interest received on capital and this may discourage accumulation and so tend in the direction of higher interest.

There are other problems connected with the general property tax. It is a well-known fact that where it is in vogue in the various states of the United States a part of it is perpetually evaded. Much personal property—jewelry, stocks, bonds, etc.—cannot be found by the assessor and is usually declared, if at all, only to a small per cent. of the actual amount owned by the taxpayer. On the other hand, as the taxation of stocks and bonds is usually accompanied by the taxation of the real estate, machinery, stocks of goods and other property of the corporations the stocks and bonds of which are taxed as personal property, there is here a double taxation. The individually owned business is taxed once; the corporation owned business is taxed twice—or would be if the tax on personalty were not so largely evaded. It is not the present purpose to express either satisfaction or regret at these facts, but the general property tax can hardly be adequately de-

scribed without mention of these significant characteristics.

Consider, now, the income tax. This, again, is a combination from the point of view of incidence, of several distinct taxes, viz., a tax on income from land ownership, a tax on income from capital, and a tax on income from labor. Income, as legally defined, includes also the additional value that land or capital has when sold by any person over its value when bought. Increase in the value of property, so occurring, is not necessarily caused by higher income from the property. The greater value may be due, especially in the case of land, to revaluation at a lower interest rate. The seller is to that extent better off and the buyer worse off. But, in any case, such a tax, resting on the seller, must come out of the seller's income or out of his property accumulated in the past; hence, it must be drawn, in the last analysis, from rent, wages or interest, or from two or all three of these. We are brought back, then, to our proposition that a tax on incomes is partly a tax on land rent, partly a tax on the interest of capital and partly a tax on wages (wages in the broad sense, including the earnings of professional men and business enterprisers). And the most reasonable conclusion with regard to the incidence of a general tax on incomes would appear to be that so much of it as rests on land rent cannot be shifted at all; that the part

drawn from interest on capital will or will not be shifted according as it does or does not retard accumulation; and that the part drawn from labor income will or will not be shifted according to whether it does or does not affect the supply of the kinds of labor the incomes of which are taxed.

The objection may be raised that in the case of a general tax on all property or all incomes the payer of the tax makes no distinction between the part of the tax resting on the rent of land and the part resting on the interest of capital and that he will be as much discouraged from saving by the one tax as the other. But the reader who had followed carefully and comprehendingly the reasoning presented in this chapter will hardly be misled. So far as the tax rests on the interest of capital, it decreases, at least for a time, the net rate of interest enjoyed by persons who engage in capital accumulation, and may discourage such accumulation. So far as the tax rests on the rent of land it does, indeed, decrease the net rent received by the owner but this does not remove the motive to capital accumulation, for, except as a tax on capital contemporaneously reduces net interest, the per cent. gain from saving is as great as before. It may, instead, merely lower the salable value of the land. This may cause loss to the owner at the time the tax is first levied, but thereafter persons who save

can buy more land with a given accumulated capital than before, and we are not prepared to conclude that this apparent enhancement of the advantage of saving will diminish saving. It seems, then, reasonably safe to conclude that the law of incidence of a compound tax is best to be arrived at by ascertaining separately the laws of incidence of its component parts.

The general income tax, whether or not it is shifted, is likely to be in some degree evaded. For in its administration it becomes necessary to determine the incomes of many persons who are taxable, by their own declarations. Where the system of stoppage (or information) at source is applied, evasion is reduced to a minimum, but the incomes of a considerable number of persons, even of some whose incomes are fairly large, e.g., many lawyers, doctors, *et al.*, are known only to themselves.

## § 8

### *Do All Taxes Discourage Accumulation?*

Lest some should raise the point as an objection to the whole theory of incidence presented in this study, it may be admitted that, on certain hypotheses, any tax may affect the interest rate by decreasing accumulation and so tending to decrease the supply of capital. Consider, for example, taxes on net mo-

nopoly profits, and on the economic rent of land. Such taxes, as we have seen, cannot be shifted in higher prices (or rents) because the monopoly will lose more than it will gain if it raises its prices above those which previously yielded the highest net returns and because the tax on economic rent in no way limits the supply of land or goods. Yet, if it be assumed that the state would waste wealth taken by taxation, which monopolists and landowners would have saved and invested in industry, then even such a tax might ultimately rest largely upon the non-propertied masses rather than upon those initially taxed. For the tax would then have the effect of making the volume of capital smaller than it would else be and of so making the equipment of labor poorer, the marginal productivity of capital higher, interest higher and wages lower. (If decreased labor effectiveness lessened the demand for land, rent might fall.) But on this hypothesis every tax must diminish accumulation. For every tax takes from citizens wealth a part of which they might and many probably would save and invest.

If, however, it is assumed rather, as it reasonably or more reasonably may be, that the funds collected by government in taxes are well used and that the performance of the functions of government is practically necessary to provide security of life and prop-



erty, to enforce contracts, to build roads and bridges, etc., then we must suppose that government may and probably does use most of the funds collected by it more advantageously for society than they would otherwise be used. It may be better that an individual should receive wealth which comes to him through no service given by him to those from whom he gets the wealth if to let him receive this wealth will result in its being saved, than for the state to take it in taxation if such taxation will divert it to wasteful ends. This, however, is not the hypothesis from which we usually start in considering tax questions. We assume the state to be a useful and practically necessary machine. We cannot overlook the fact that such a machine costs something to run and that the means to run it have therefore to be secured somewhere. We cannot, therefore, in reason, regard every tax as occasioning or tending towards a shortage of capital and so raising the interest rate. We must assume that, in the case of a reasonably intelligent and decent government, the wealth diverted from private citizens to the government is used as favorably for capital accumulation as if the taxes had not been levied. But although wealth already gained may be as well used, in this respect, by government as by individuals, the taking of it in taxation may affect the motives of individuals for the saving of capital as a means to



larger future income. Even though any taxation decreases the ability of the taxed individuals to save, the taxation may result in more accumulation than would result in the absence of government and of the security which taxation enables government to provide. But that almost any taxation thus makes possible more saving than if there were no taxation at all is beside the point generally emphasized in studies of incidence. The significant fact for public policy is that some taxes do not at all discourage accumulation except in the sense that the individual cannot accumulate what the state takes from him and that other taxes may affect adversely the *motive* to accumulate. Relatively speaking, then, the latter taxes may be said to be likely to raise the interest rate so that, in the long run, the burden of them falls upon other classes than those on whom they are first imposed. The latter taxes may be shifted. The former are properly enough referred to as taxes which cannot be shifted.

## § 9

### *Summary*

In this chapter, in spite of what may appear to be digression, we have been mainly interested in the incidence and effects of taxes on land. Taxes on land values conditional on a special use or uses of the land

tend to be shifted upon landowners in general by forcing some land out of the taxed use into other uses. Taxes on land values in general are borne by the owners of the land taxed. Such taxes cannot be shifted either in higher rents or in higher prices of goods. To tax vacant land at the same rate as used land may operate to actually reduce rents by increasing somewhat the available supply of supra-marginal land and may increase the output of goods. Taxes on land values are capitalized into a lower price of land. This tends, especially if higher land taxes are contemporaneous with lower capital and other taxes, to make purchase of land easier and may tend to diminish tenancy. The securing of a competence by the industrious and ambitious is easier. Owners of land at the time the tax goes into effect, may lose if they have to sell out at the resulting lower price. Increased taxes on land in one locality together with reductions of other taxes may cause rapid settlement in that locality, appreciable rise in land rent (though not in net rent to owners), and lower land rent in environing communities.

## CHAPTER IX

### THE SHIFTING OF TAXES ON SALES OF LAND AND CAPITAL GOODS AND ON LOANS

#### § I

#### *Taxes on Sales of Land*

A tax on commodities is wholly or partly shifted upon consumers according as the taxed goods are produced under conditions of constant or increasing cost, respectively, and according as the demand for these goods—if they are produced under conditions of increasing cost—is absolutely inelastic, or is more or less elastic. If the conditions of production of a taxed commodity are those of constant cost, and if the industry is a competitive one, all of those in the business (with their land and capital) would leave and go into some other line or lines of production rather than bear any special tax.<sup>1</sup> If the demand for a taxed article is absolutely elastic, all the consumers will refuse to buy rather than pay an appreciably higher price. Usually both demand and supply are some-

<sup>1</sup> Obviously those in the industry, along with others, will, as consumers, help pay this or other taxes levied on commodities.

what elastic. Some of the persons engaged in producing the taxed article are unwilling to continue so doing unless they can shift substantially the entire tax, but others may be willing to continue producing though they can shift but a part or none. Likewise, some buyers will not purchase a taxed good, or will purchase appreciably less of it, if the tax is shifted to them in any noticeable degree; but others will purchase though they have to pay some or all of the tax in the form of a higher price. A tax on commodities, therefore, or on a given commodity, while it is usually borne chiefly by consumers, may frequently be borne in part by producers of the goods or good taxed.

The case of taxes on sales of land or capital goods or on mortgages or loans is analogous. But while taxes on commodities fall upon consumers as such, regardless of the various sources of their incomes, and so rest on interest, wages, and rent,<sup>1</sup> we may find that taxes on sales of land or capital goods or on loans have a somewhat different ultimate incidence.

Let us begin by asking what would be the incidence of an appreciable tax on sales of land, e.g., 1 per

<sup>1</sup> If, there being no more money or bank credit expended, prices of taxed goods rise, other prices tend to fall. If all commodities are taxed, and their prices rise, money incomes tend to fall. Where an extra price has to be paid for an article, because of a tax, the tax money paid tends to be prevented from acting so immediately to make demand for other goods as it might were the tax not required. The present writer discussed this point partially in an

cent. of the value of each sale. We may assume that only some buyers and some sellers are marginal, that the remainder of buyers would pay a higher price rather than not buy, and that the remainder of the sellers would accept a lower net price rather than not sell. To illustrate the likely situation, on a small scale and in a simple way, we may suppose a number of pieces of land of equally good quality and location. Five of these tracts are owned by A, B, C, D, and E, respectively, each of whom would sell for a price of \$10,000. Of the potential buyers, five, V, W, X, Y, and Z, would purchase at that price. The price of \$10,000 is, then, a price at which all the land of the given description can be sold which the owners are willing to sell at that price. It is the price which "equalizes demand and supply" in the absence of any tax on the sales.

But what will be the conditions of equalization of demand and supply if sales of land are obstructed by a 1 per cent. tax? Since, by hypothesis, some of the buyers are marginal, the price of what land is

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article in the *Journal of Political Economy* for June, 1920, entitled "Some Frequently Neglected Factors in the Incidence of Taxation." Emphasis was then placed on the fact that, in the case of indirect taxation, the tax money goes through several hands on its way from consumers to government. But even if consumers, when buying taxed goods, paid the tax directly to government, the money so paid might, for a very short time, be prevented from acting so as to make demand for other goods.

sold can rise by the entire amount of the tax only if several of the sellers are also marginal, i.e., would rather keep their land than to receive for it, after subtracting the tax, less than \$10,000 for each tract or plot. If all of the would-be purchasers are marginal, any rise of price whatsoever must result in no sales; and if all of the would-be sellers are marginal, their inability to charge any higher price because of the tax must result in no sales. But if, of the five owners of land who, in the absence of a tax, would sell for \$10,000, three would rather take (say) \$9,940 net than not to sell; and if, of the five prospective buyers, three would rather pay \$10,040 than not to buy, then three sales will take place in spite of the tax, and the tax will be borne \$40 by each purchaser and \$60 by each seller.<sup>1</sup> Demand and supply will be equalized, assuming a tax of \$100 on each sale, with a net sale price of \$9,940 and a gross sale price of \$10,040. The tax is then divided between buyer and seller.

So far, the argument is perhaps obvious and, possibly, commonplace. But further analysis is desirable. From what sort of economic income is the tax paid—or does it come from several sources? Is it drawn

<sup>1</sup> If the tax is reckoned as 1 per cent. of the net sale price, it is \$99.40; if 1 per cent. of gross sale price, it is \$100.40. It has seemed well enough, in the text, to reckon the tax at \$100 on each sale.



from rent or from interest or from wages? Let us consider, first, whatever part of such a tax is paid by the purchaser. Before we inquire whether, of the part paid by the purchaser, any portion is drawn from economic rent, we may advantageously state our conception of rent. The rent of such a piece of land as we have in contemplation is to be reckoned as measured and determined by the difference between the annual product of industry and what that product would be if this specific piece of land were non-existent, and if, therefore, the labor and capital employed upon it had instead to be used on the margin (extensive or intensive) of production. Those business enterprisers to whom it makes the maximum difference whether or not they secure the use of supramarginal land of a given description, will ordinarily offer enough for it so as to outbid enterprisers to whom its relative advantages are less. The rental value of land of this description is (assuming perfect competition) what that tenant would pay who is a marginal tenant, i.e., who is just induced to hire a piece of this land, and without whom the supply of such land, offered at the given rent, would exceed the demand. Tenants of other plots of land of this description, who are supramarginal tenants, may produce absolutely more from the land they hire than does the marginal tenant from his, or they may produce merely more relatively to

what they could produce on no-rent land or more than they could earn as hired employees. But whatever these supramarginal tenants get in excess of the rent they pay (and in excess of interest on the capital they use) may fairly be reckoned as their wages or remuneration for effort, or, as it is sometimes called when the effort is self-directed, their profits.<sup>1</sup>

A tax on land sales may conceivably have an indirect effect on rent although, in the respect we are about to discuss, it is unlikely to. Thus, such a tax may make some would-be purchasers prefer to be tenants and so may tend to increase the demand for land to rent. But it seems about equally likely that the tax would make some intending sellers prefer to lease their land to tenants, and would so increase the supply of land to be rented.

A tax on sales of land may, however, be drawn directly from rent. Suppose, for example, that the supramarginal buyer, who can rather afford to pay a

<sup>1</sup> If there is a larger number of persons to whom supramarginal land of the given description is relatively much better than the rest, then the person who was a marginal tenant of this land falls below the margin since others outbid him. The new marginal tenant is one who can afford to pay more for it. Under these circumstances the difference between having and not having in the community any given tract of such land is greater than before. Its marginal product is greater. But the marginal product of the tenant who is now just induced to hire such land is less than if there were fewer to bid against him. Worth-while use of this land does not depend so exclusively upon him and a few like him.

part of the tax than not to buy, is interested in this land only as a prospective recipient of rent. He does not intend to do any work on it or to improve it in any way, but merely to lease it—perhaps for fifty years—with suitable guaranty of rent payment. He purchases the land, perhaps because a change of residence removes him so far from property he formerly owned as to make him fear loss through lack of oversight. He therefore sells his former property, but from the rent which his new property yields, a part must be subtracted to reimburse him for the tax. In such a case the tax is drawn, in the last analysis, from rent.

But the tax may in other circumstances be drawn from labor income. Consider the case of a supra-marginal buyer, who, as a tenant, could earn for himself \$1,000 a year in excess of rent and interest, and who could invest his funds in bonds or mortgages so as to get as large a per cent. return as the economic rent of the land would be. Such a buyer, however, might be one who, with the freedom and power of initiative of an owner of the land, could get by using it, not only what it would rent for,<sup>1</sup> but \$1,100 a year besides. In other words, he might be a person whose labor income as such would be \$100 a year larger if he could direct his own labor entirely and use his

<sup>1</sup> Plus a reasonable interest on the cost of any improvements.

own judgment in managing the land than if he had to work as a tenant or an employee. Such a person could better afford to pay a part or all of the tax than not to become an owner. The tax would be, in ultimate effect, a subtraction from his labor income. He would be able to pay the tax because his labor income as an owner of this land so far exceeds his labor income in any other option. He can pay it because he has a profits or wages surplus above what would be necessary to make him follow the occupation of an independent entrepreneur or enterpriser. In the absence of the tax he would simply enjoy this surplus labor income. But since it is a larger labor income than he can secure in his best alternative, and since he has available funds to invest, he is willing to pay a higher price for his land in order that he may enjoy this surplus. He is willing, if necessary, to purchase the privilege of earning such a surplus. And in that sense the tax, or the part of it which he pays, may be regarded as a capital investment looking toward a larger future income than the purchaser could otherwise get from his labor.

In passing it may be added that, when land is bought by a consumer as such, e.g., for a home, the supramarginal buyer pays his part of the tax out of his "consumer's surplus." Some would rather rent than pay any tax. They are marginal. Others are willing

to pay a tax for the consumer's satisfaction of ownership.

Consider, now, the case of the sellers. The marginal seller will pay no tax. Rather than sell for less than \$10,000 (to use the figure of our example) he perhaps will prefer to operate the land himself or to lease it and enjoy the rent. But another potential seller may be differently situated. Perhaps he lives so far from the land he owns that he would feel safer to invest in other property, and would so prefer to pay part or all of the tax rather than not sell. Part of the interest or rent, or both, derived from his new investment may then be regarded as drawn upon to pay his loss—though he may simply regard himself as permanently that much poorer. Still another potential seller may prefer to sell in order that he may work as an employee and relieve himself of supervisory functions for which he is relatively unfitted and which he cannot satisfactorily delegate. Such a seller in effect makes good his tax out of the larger labor income which he is thereafter enabled to earn.

That a tax on sales of land would prevent some exchanges and keep some persons from performing the functions for which they are best fitted is probably true. Efficiency of production might so be decreased. But our present interest is rather with the problem whence comes, in the last analysis, the tax money.



It is perhaps hardly necessary to remark that similar conclusions would apply in the case of a tax on the sale or transference of any capital equipment.

## § 2

### *Taxes on Mortgages and on Loans in General*

But perhaps a more interesting problem—and one which may be discussed in a very similar way—is the problem of the taxation of mortgages and of loans in general, and the shifting of such taxation. Economists in the field of taxation are wont to state that a tax on mortgages is shifted upon borrowers, although sometimes they qualify the statement slightly, admitting that there may be cases where not quite all of the tax is so shifted. But the usual analysis is incomplete and, therefore, unsatisfactory. The assumption is generally made that most lenders are marginal and will refuse to lend unless they can add practically the entire tax to the interest charged the borrower. This may be ordinarily true in jurisdictions where evasion of mortgage taxation is prevented, because practically every potential lender has an alternative almost, if not quite, as good in his ability to invest in bonds or to invest in mortgages on property in another jurisdiction or state. If, and where, the potential lenders, however, through unfamiliarity with



their other possible options, or through prejudice, are excluded from taking advantage of such options, these lenders are likely to bear part of such a tax, for most of them will prefer, perhaps, to receive somewhat lower net interest than not to lend.

We can perhaps get a clearer glimpse of the theory of the subject if we suppose the alternatives of lending through some other method—such as bond-buying—to be shut off by making the tax general on all loans. Let us suppose, then, a federal tax of (say) 2 per cent. on loans of every kind, so that the lender may not avoid the tax by making a different kind of loan, or a loan in a different jurisdiction, and let us suppose that information or stoppage at source is so effective as to prevent evasion. Would the whole of such a tax be shifted to borrowers?

A proper solution of the problem requires a consideration of the various alternatives of borrowers and lenders. Undoubtedly some borrowers would be marginal. Such would refuse to borrow should the charge on loans rise by one iota. Some corporations which had intended to borrow by selling their bonds would instead sell stock. Some individuals who otherwise would have sought to get title to their homes, by purchasing on mortgage, would now prefer to remain tenants. Some business men who might have borrowed, and so purchased the premises they use, would

instead rent their premises. Some persons who, in the absence of the tax, would have purchased farms on borrowed money, giving mortgage security, would instead become tenants, hired managers, or laborers.

On the other hand, some borrowers are supramarginal. The prospective home-owner who would purchase rather than rent, even if a tax on mortgages adds to his interest rate, the business man to whom ownership of the premises he occupies and the resulting freedom to make what changes he desires without let or hindrance means much in larger annual income, the farm tenant to whom the difference between being an owner and being a tenant is likewise significant enough in prospective larger income to make borrowing at a higher rate still preferable to continued tenancy—these are supramarginal borrowers. If all borrowers were thus supramarginal, and if some of the lenders were marginal, the borrowers would clearly pay much or all of the tax.

But some of the lenders are also likely to be supramarginal. For if, as on our present hypothesis, all loans are taxed, lenders cannot avoid the tax by merely changing the form of the loan or by loaning to a corporation instead of to an individual. Those owners of funds who do not wish to lend must either invest their funds in corporation stock, with the greater risk of such investment, or must invest still more directly

under their own entrepreneurship or must use up their wealth in current gratifications. But some of them will be persons who would readily take less interest than before—perhaps 2 per cent. less—in preference to investing where the risk is greater. Some, also, may prefer to take lower interest and be free of the necessity of personally directing their investments rather than to have to work as business enterprisers or entrepreneurs. And some lenders can employ their capital so inefficiently themselves that they can better afford to lend it at a considerably lower net interest than before, perhaps then engaging in work under another's superintendence, than themselves to direct the use of their own capital. Under such circumstances it is reasonable to suppose that part of a tax on loans might fall upon lenders. If to add the entire tax to the interest borne by borrowers would cause some borrowers—the marginal ones—not to borrow, and if many of the lenders would rather lend for less than not to lend, then a part of the burden of the tax is likely to fall upon lenders.

On what sorts of income does such a tax on loans finally rest? So far as borrowers bear it, it will be likely to come out of their surplus labor incomes above what they would earn as tenants or employees. The supramarginal borrower is willing to pay a part of the tax just because he can produce more and get a

larger labor income as a self-directing titular owner than otherwise. Supramarginal borrowers, at least, who thus borrow in spite of the tax, will not be likely because of it to do less work or produce fewer goods. And marginal borrowers, though the tax prevents them from borrowing, will not therefore be prevented from working. We need not conclude, therefore, that consumers, as such, will have to pay the tax in higher prices of goods.

Other borrowers—those, for example, who borrow for the pleasure of having title to their homes—pay their part of the tax out of consumers' surplus. In the case of the ordinary tax on mortgages, when loans and investments of other sorts are not reached, the lenders' options are so numerous and good that they will usually pay next to nothing of the tax; but borrowers who want funds to purchase farms or homes will frequently be unable to borrow the required amounts except on mortgage security, and, therefore, if they are supramarginal, are likely to pay the entire tax.

In the case of a tax on all loans, lenders are likely to pay a part. But out of what incomes or classes of income will they pay it? Can it be said that they will pay it out of interest? Clearly the net returns these lenders receive on the capital they loan is reduced by the tax. In this case the tax does not come

out of wages, and it certainly does not appear to be drawn from rent as such.<sup>1</sup> It comes, definitely, from interest. Whether, in the long run, such a tax may affect saving adversely, decrease the supply of and increase the marginal productivity of capital, and, by so doing, injure other classes, we shall not here inquire. Indeed, it is doubtful whether we could reach on this point, with confidence, any conclusion. Suffice it to say that we have shown the incidence of a tax on loans, so far, to be partly on income from labor (when borne by borrowers who borrow for ownership and production), partly on consumers' surplus (when borne by persons who borrow to get title to their homes), and partly on interest (when borne by lenders).

We have not yet, however, sufficiently discussed the question whether a tax on mortgages or a tax on all loans could be shifted upon consumers. If there are some industries which make a larger proportionate use of loans than others—the others depending on direct investment or on stock sales rather than bond issues—then the tax may tend slightly to divert capital out of the former industries and into the latter (those not making use of loans). This would somewhat increase the prices of some commodities, but it would

<sup>1</sup> Though the lender's interest may be paid out of the rent of land which the borrower has purchased with the funds loaned to him.



lower the prices of other commodities. Consumers, as a whole, would not, perhaps, lose on the one hand more than they would gain on the other. But so far as the tax affects all industries equally, it does not tend to drive capital out of any one business into others. Furthermore, persons who are prevented, by the tax, from becoming owners of property, have still to earn a living and will often produce as tenants, hired managers, or laborers, the same kind or kinds of goods they would produce as owners. If and when this is not the case, and the would-be purchaser of land and capital, being prevented from purchasing, does not produce the kind of goods to the production of which the property is adapted, the would-be seller who might have ceased to produce those goods may instead continue to produce them. A tax on loans or on mortgage loans is distinctly not a tax on commodities, and its incidence is not on consumers as such. It may have evils in preventing property from getting into the hands of persons who can do relatively the best with it. It may thus affect the efficiency and earning power of those who are prevented from buying or selling. But these do not pay the tax since the threat of it prevented their intended transactions. And there can be no shifting of a tax where there is no tax to shift. If labor efficiency is reduced, those who are therefore unable to earn so much suffer in



their wages or profits. Neither they nor others suffer as consumers.

While it is interesting to discuss the incidence of taxes on loans in general or on mortgages in particular, supposing such taxes to be levied and effectively collected, it is well known that, in general, it has proved impossible to collect them. Such taxes are, in the United States, a part of the so-called "general property tax" levied by many American states and cities. Stocks, bonds, money, and mortgages are easily concealed. The owner, declaring his property for purposes of taxation, ordinarily understates his property in these forms by about 90 per cent.<sup>1</sup> Hence, such property is, in fact, but lightly taxed and there is little burden to be shifted.

It is interesting to note—and we may note the fact here without attempting either praise or blame—that the general property tax as actually applied in present-day America is a system under which the attempt is made to tax some property twice while other property is taxed but once. This is probably due to our complicated system of property owning coupled with a failure on the part of the ordinary citizen to understand the fundamental similarity of ownership in cases

<sup>1</sup> See Gephart, "The Operation of the General Property Tax in Missouri," *Washington University Studies*, Vol. VI, Humanistic Series, No. 1, 1918, pp. 20-23.

which are superficially different. Thus, to illustrate, suppose that a farmer owns a farm. He is taxed on it under the general property tax at some assessed value. If three or more brothers own it in partnership, each is liable for part of such a tax depending upon his proportionate share of the total value. But what if the brothers organize a corporation to hold the farm, each of them owning his proportionate share in the stock of such corporation. Then a tax may be levied on the farm owned by the corporation *and also* on the stock of the corporation owned by the brothers. The ownership of the stock is merely the ownership of a part of the value of the farm indirectly. But the case is treated as if the actual property were doubled. The individual farmer might conceivably be taxed in a similar way, i.e., on his farm and also on his deed of ownership of the farm. This, in fact, is not done, but if his ownership is evidenced through the possession of certificates of stock in a corporation instead of through a private deed or through articles of partnership, then there are two taxes instead of one—or would be if the tax on the stock could be collected.

### § 3

#### *Taxes on Sales of Corporation Securities*

The taxation of sales of corporate securities is an

analogous problem. There are marginal and supra-marginal buyers, marginal and supramarginal sellers. The supramarginal buyers would be willing to pay some tax in the form of a higher price for stocks and bonds rather than to adopt the option of not saving, of lending to private persons, or of directly managing their own funds. So far as a supramarginal buyer pays such a tax, he pays it in effect from the income of the investment in excess of that necessary to induce him so to invest his funds. The supramarginal sellers are those who would rather take less for corporate securities they have to sell than to be deprived of the chance to spend or "live out" their capital or than to be unable to lend to private persons or than to be prevented from investing directly under their own direction. So far as they pay this tax it comes out of the surplus labor income which they expect to be able to get if they can superintend their own capital, or—if they intend to spend it in personal consumption—out of the excess of consumers' utility above what is necessary to make them choose that option.

So far we have seen no reason to suggest that such a tax will diminish saving. The buyer who is marginal between investing in corporate securities or using up his savings may be induced to do the latter. But the seller who is marginal between holding his securities and using up his wealth may be induced by the

tax to do the former. When, however, we come to consider, not the transfer of long-issued securities from person to person, but the sale of new securities to provide funds for corporate business, there may be significance in a tax which reduces the net per cent. return to the potential investor. Conceivably accumulation will be adversely affected, the supply of capital diminished, the marginal productivity of capital increased, and the rate of return on capital raised. Or, if the marginal investor is not marginal between investing in corporate securities and spending for current consumption, but instead is marginal between investing in corporate securities and investing under his own management as an entrepreneur, then such a tax will diminish corporate enterprise, and may so diminish it and substitute private enterprise in its place, even where corporate enterprise somewhat better serves the purpose.

Finally, any considerable tax on sales of corporate securities would of course negative their frequent transfer. A supramarginal buyer, of the sort we have described, might prefer to pay such a tax in order that his money might be invested in corporate securities over a fairly long period. But he could not so well afford to pay even a small part of such a tax if he were likely to need to liquidate his investment—i.e., sell the securities—a day or two after buying them.

A tax of 1 per cent. on the market value of securities sold might be relatively unimportant to the long-time investor. But if a security were active and sold every day, the taxes on it during a year would be several times its total value. Assuming no market fluctuations, every buyer would have to sell it for less than he paid for it, by the amount of the tax. The seller, as such, might bear a part of the tax and the buyer a part, but the buyer who was also a seller would pay all of the tax. And only a speculative motive would be likely to induce any one deliberately to put himself into such a position.

#### § 4

#### *Summary*

We have seen, in this chapter, that a tax on sales of land (or capital) may, like a tax on commodities, rest partly on persons connected with the supply side of the market and partly on buyers, according to the elasticity or inelasticity of demand and of supply. Similarly, a tax on loans may rest in part on lenders despite the frequent insistence of some economists that such a tax falls, in the last analysis, on borrowers. Doubtless in practice borrowers do pay most of a tax on mortgages when such a tax is levied, e.g., by one of our American state governments, and when vigorous

attempts are made to discover mortgage ownership and to collect the tax, because lenders can so easily invest in securities the ownership of which cannot be discovered or in mortgages in other jurisdictions. The incidence of a tax on sales of securities is also likely to be partly on buyers and partly on sellers. The funds secured by such taxes as have been discussed in this chapter are, according to the varying circumstances of each case, drawn from the labor incomes, interest or rent of the persons on whom the taxes rest.



## CHAPTER X

### THE INCIDENCE OF IMPORT AND EXPORT TARIFFS

#### § 1

#### *Revenue versus Protective Tariffs*

Taxes may be levied either on goods coming into or on goods going out of a country. The former are spoken of as import duties or tariffs. The latter are export duties. Of the two, import duties are much more common and, therefore, ordinarily receive more attention in economic discussions. A protective tariff is a schedule of import duties on various articles. But import duties are not necessarily protective. They may be levied solely for the purpose of securing revenue. In practice, import duties are often the result of a compromise. They indicate a desire to "straddle." They provide some protection and yield some revenue. They try to combine two opposing principles. They give less protection than a purely protective tariff would give and they yield less revenue than a purely revenue tariff would yield. A tariff might be levied, strictly for protection, which would so discourage im-

porting as to yield no revenue. Likewise, a tariff might be levied, strictly for revenue, which would provide no protection. Tariffs of this latter kind, at least, have actually been levied, for example by Great Britain.

## § 2

### *The Nature and Purpose of a Protective Tariff*

The specific purpose of a protective tariff, so-called, is to prevent or restrict importation. The advocates of protection hope, by this means, to enable the home producer to sell his goods in the domestic market unhindered by foreign competition and, therefore, presumably, at a higher price than he could secure if not so "protected." For indeed protection is not a necessary means of giving home producers the domestic market. It is only a necessary means of giving them this domestic market while they are nevertheless charging relatively high prices for their goods. The home producers of any given commodity (or commodities) could have the domestic market without any protective tariff, to the practical exclusion of foreign producers of the same sort of good, if they would sell it for a low enough price. Such a low price could of course be charged if the land, labor and capital required for producing the good could be secured for

low rent, wages and interest respectively, as they could *if there were no alternative industry more profitable*. Likewise, labor, land and capital could find ample employment in such an industry, without protection, if they would offer themselves at sufficiently low rates. What the protective tariff really does is to enable labor, land and capital to get more in such an industry than they could get without protection, by making possible the charging of a higher price for the output than the unrestricted competition of imported goods would permit. It may fairly be said, then, that a protective tariff is a device for enabling the home producers of the goods protected to charge higher prices than could be charged without protection.

To illustrate, let us suppose that woolen cloth of a given quality can be produced abroad and sold in the United States at a price of 20 cents a yard. Let us suppose, also, that the so-called cost of producing such cloth in the United States is 40 cents a yard. Then a tariff of 20 cents or something more, per yard, would enable the home producers of woolen cloth to sell for 40 cents a yard, whereas, without such a tariff, they would have to meet the price of their foreign competitors, 20 cents, or keep out of the business.

But if 40 cents a yard is the *cost* of producing in the United States, is it possible for a domestic manufacturer to produce cloth and sell for less than cost?

Does he not "need" a tariff which will enable him to charge for the cloth at least what it costs to make it?

In order to answer this question intelligently we need to recur to our analysis of cost of production. When demand and supply are equal, the cost of production of the marginal unit produced is, under conditions of competition, just equal to the price. Cost of production we have seen<sup>1</sup> to be resolvable into what the factors engaged in producing a given article could secure if each such factor were directed to another industry. To say, therefore, that the cost of production of cloth is 40 cents a yard is to say that the amount which could be secured elsewhere by the labor, the capital and the land which is required to produce, jointly, a yard of cloth is 40 cents. If all the labor, capital and land which is needed for the business of manufacturing woolen cloth in the United States can be secured for a *less* amount per yard produced than 40 cents, then it is nonsense to say that the cost is 40 cents per yard. If the best that the labor and other factors required can get in another no less agreeable industry is 19 cents, then a price of little more than 19 cents a yard will be enough to draw labor and other factors into cloth manufacturing, and the

<sup>1</sup> Chapter III, §§ 2, 3 and 6. See also the author's book, *Economic Science and the Common Welfare*, Columbia, Mo. (The Missouri Book Co.), 1923, Part II, Ch. II, §§ 2-5.

home product will be able, without any tariff, to undersell the foreign product in the home market. And if enough such cloth can be produced, at 19 cents, to satisfy the entire domestic demand, a tariff will not, in the absence of monopoly control, raise the domestic price.

It may happen, of course, that some labor, land and capital can be secured at 19 cents while other labor, land and capital, being relatively better adapted to other industries, cannot be drawn into woolen cloth production for less than 25, 30, 35 and 40 cents. Or perhaps some labor, while not able to secure larger returns elsewhere, may find work in textile mills so relatively disagreeable that only a high wage and a correspondingly high price of cloth will draw it in. If then, the desired woolen cloth cannot be secured, at home, without drawing into the business labor, land and capital which will not come at less than 40 cents and if the demand, at that price, is sufficient to take all that can be produced by drawing in such labor, land and capital, then the result of a high protective tariff must be to make the price of the cloth 40 cents a yard. The cloth would cost 40 cents a yard at the margin, i.e., to the marginal producing factors.

It may be worth while to point out here that what it might be necessary to pay the marginal labor and other factors to bring such factors into the business,

all labor, land and capital of corresponding efficiency engaged in the business would tend to get. Thus, if one carpenter, A, has to be paid \$1,000 a year because he can make as much in another job, the services of another carpenter, B, who is equally efficient, will command as much. If they did not, employers would prefer to hire B, and would bid against each other for B's services. Competition must inevitably tend—although, of course, it is often imperfect—in the direction of giving to those who can easily be induced to enter work in any given line, as much as those get who are barely induced to enter it. If, then, the *marginal* cost of producing woolen cloth in the United States is 40 cents a yard, the typical cloth manufacturer, reckoning up his actual or prospective expenses for wages, interest and rent (including returns for his own time, capital and land) will say that the cloth costs him 40 cents a yard to produce. Doubtless a price somewhat less than 40 cents a yard would, though reducing wages, etc., in the industry, leave some labor, capital and land still in the business. Nevertheless, such a manufacturer would probably say that he “needed” a tariff of at least 20 cents a yard to enable him to compete.

Consider the matter now from the viewpoint of the national income. The protective tariff, by preventing the sale of the foreign cloth here, except at 40 cents



or more per yard, enables the domestic producer to charge 40 cents. It enables him to charge what the cloth "costs" him. But to say this is merely to say that it enables him to charge enough so that he and those he hires and the land and capital used can get as much as, where they are marginal, they could in any case get in other lines. The consuming public must, however, pay 40 cents for its cloth instead of 20. In other words, the consuming public must pay 20 cents more for every yard of cloth it buys, not in order that home cloth producers may be 20 cents better off than they would otherwise be but merely in order that they may be *as well off* (where they are marginal) as they could be without the tariff if they would go into or remain in the industries for which they are respectively best adapted. To express still differently the same thought, the general public inevitably loses more than the protected producers gain. For the general public loses 20 cents on every yard of cloth. But the cloth producers do not gain by this entire amount—if, indeed, they gain at all. So far as it is true that producers *must* have 40 cents to keep them in the business, this is because there are other lines in which they can engage where they will be as well off as if producing cloth at 40 cents a yard. If so, they gain nothing by protection. And even if other lines would not be as profitable for them as

producing cloth at 40 cents a yard, nevertheless their gain from the tariff is less than the general public's loss. Only if those connected with the cloth-producing business would rather produce cloth, even at 20 cents a yard, than devote their labor, land and capital to anything else, can it be said that the surplus 20 cents is all net gain to them in excess of what they could get in the next best line open to them. Only in that case does the tariff benefit the protected interests as much as it hurts the public. But even in that case, the gain of the protected interests cannot possibly exceed the loss of the purchasing public. For without a tariff they could still engage in the industry—if they chose—for a return of 20 cents per yard, or whatever price might be necessary to insure a market for their goods. And to whatever extent the tariff might enable them to increase their price, to just that extent, at least, it would be a burden upon consumers.

Up to this point, in our discussion of the protective tariff policy, we have considered the cost of production of the protected cloth as the amount necessary to bring into the business the marginal labor, land and capital necessary to supply the public. Let us, however, center our attention, for a while, on labor alone, assuming the other costs to be non-existent. So far as labor alone is concerned, the cost of production of the cloth is the amount per yard necessary

to bring labor into this line from other lines of production or to keep it from going into other lines. If the labor necessary to produce woolen cloth of the given grade can earn, in the United States, \$4 a day at other work and if it can produce but 10 yards of cloth per day, per person employed, then the cloth must sell for not less than 40 cents a yard in order that the 10 yards produced may bring an equal wage in the cloth industry.

It is said, however, that protection is necessary in order that the domestic woolen cloth industry may exist, in order that those engaged in it may have employment, and in order to keep up wages-in-general. The woolen cloth industry might not exist without protection, but if so, this is only because the persons engaged in it could do better in something else than they could then do in this industry. Protection keeps them in the industry only at the expense of others. The statement that protection keeps the industry in existence may be true, but it does not indicate any advantage of protection. And the other two alleged advantages of protection are simply non-existent. The persons engaged in the industry can have all the employment they want, without any tariff, if they will take for their services what these services would be worth, i.e., they can have the entire domestic market for their domestic cloth, and as much employment in

producing cloth as with the tariff, and can have it without tariff protection, if they will only sell the cloth for a low price and take as wages what such a price will yield. They will, perhaps, prefer to follow other lines rather than do this. But to say this is to say that *there are opportunities* of employment in such other lines. Indeed, to let cloth consumers buy their cloth abroad at 20 cents a yard, would save them the other 20 cents which they could then spend on other things. Also, it would enable foreigners to buy more American goods. Thus, in two ways would such purchase abroad contribute to the demand for American labor.

We come, then, to the contention so familiar to our American public, that protection makes wages high. In the sort of case we are considering it may possibly raise the wages of some persons. But it can do so, if at all, only at the expense—normally the much greater expense—of other persons. Those cloth-producing wage-earners who could do no better in any other line than they could do in woolen cloth production under conditions of free trade, who could not earn in any other line more than \$2 per day, would gain, by virtue of the tariff, 20 cents additional a yard or \$2 additional a day. But this they would gain by the corresponding loss of those other workers, e.g., carpenters, brick-layers, iron-molders, mechanics and

farmers, who have to buy the cloth at the increased price.<sup>1</sup> We may safely assert, then, that no protective tariff on goods which can be imported more cheaply than they can be produced at home, and as to which this condition remains indefinitely true, can possibly raise the wages of those producing such goods without taking an equal amount away from the consumers, who are, in the large, equally likely to be wage-earners.

We have already found reason to believe, however, that average wages are actually lowered by a tariff. Most of the protected wage-earners, if protection were removed, would not need to stay in the woolen cloth industry and get only 20 cents a yard or \$2 a day. They would be able to engage in other industries yielding more than this; some of them, perhaps, could earn \$4 a day and under free trade the \$4 would buy more. Under these circumstances the result of the tariff is to give much less—if anything—to the workers in the protected industry than it takes away from other workers. The tariff is a means by which some gain relatively little—if anything at all—and by which others lose much. It is a means by which part of the people of the protectionist country get more than their services would otherwise command in the pro-

<sup>1</sup> If it be true, in practice, that part of the loss falls upon land-owners and capitalists in other lines, it may also be true that not all the gain from the protective tariff goes to wage-earners.



tected work and get it at the expense of their fellow citizens who have to buy goods at prices enhanced by protection.

There is no intention to assert that there are not any respectable arguments for protection. The infant industry argument has been put forth as sometimes justifying protection. When fairly stated this argument admits the economic loss from diverting people out of lines where they work most effectively, into other lines. But it asserts that the industries so started at a loss, may soon develop to a point where they need no protection. (Unfortunately, those in such industries seem seldom willing to admit that the industries have reached such a point.) If it were politically possible to select industries for protection solely on the basis of their chance of so developing, this argument for a protective tariff might have considerable weight. And perhaps as much or more may be said in favor of the development at home, at an economic loss if need be, of industries which seem essential to national defense.

Nevertheless it remains true, in general, that a protective tariff, as such, is a means of shutting out goods rather than of raising revenue; that, if completely effective in shutting out imports, it raises no revenue whatever for government; that it does raise the price of goods to consumers and that, therefore, the tax (if



the protective tariff be regarded as a tax) is collected from consumers by the protected producers rather than the government.

### § 3

#### *When "the Foreigner Pays the Tax"*

One minor qualification, however, it is necessary to make. The claim is sometimes advanced by protectionists who have not analyzed the phenomena of international trade, that "the foreigner pays the tax." The fact is, as we have just seen, that, in general, the tax is paid by the domestic consumers in higher prices of the protected goods, that the tax goes to the domestic producers of these goods rather than to the taxing government, and that the domestic producers of these goods gain less—where they gain anything—than the consumers lose. Nevertheless, there is a theoretically possible case, not at all understood by most protectionists, under which the burden of a protective duty might be chiefly borne by foreign producers.

Let us suppose that woolen cloth can be produced in the United States for 21 cents a yard and that cost of production of such cloth in the United States is constant (i.e., it costs no more per yard to produce a billion yards a day than to produce 50,000 yards). Then a tariff shutting out foreign cloth would not,

assuming no monopoly to be established, raise the price of cloth above 21 cents a yard. If, however, domestic industry is thus so far diverted into this line as to provide for the entire domestic demand, the government will receive no revenue. In order that the government should receive revenue some of the article must still be imported despite the tariff.

Suppose, now, that the tariff is 10 cents a yard and that the cost of production abroad is 20 cents a yard. Then, if this foreign cost of production is constant, any or all of the foreign producers would go out of the business rather than sell in the United States for 20 or 21 cents a yard and so have only 10 or 11 cents a yard for themselves after paying the tax.

But if production abroad is under conditions of increasing cost, part of the tax may be paid by foreigners. Thus, suppose the first 10 million yards of cloth produced abroad cost 11 cents a yard, the next million 13 cents, the twelfth million yards 15 cents, the thirteenth million yards 16 cents and so on up to 20 cents or more, the cost per yard of the last million yards necessary to supply the American market. Then a tax of 10 cents a yard, coupled with the possibility of production at home of any quantity of the cloth at 21 cents a yard (i.e., constant cost at home), would result in all land, labor and capital abroad ceasing to produce cloth for export to the United States,

except such land, labor and capital as could be kept in the industry at a net price of 11 cents a yard. On our present supposition there is enough land, labor and capital which could be kept in the business for that price, to make a total of 10 million yards. If, therefore, the American public can be supplied with domestically-produced cloth at 21 cents a yard and if 10 million yards can be secured from abroad for 21 cents (including the tax of 10 cents) or slightly less a yard, whereas to completely supply American needs from abroad would bring the marginal cost up to 30 cents a yard (net price 20 cents plus tax of 10 cents), then after the tax the price to the American public could still not exceed 21 cents. Those foreign producers who continued to be willing to turn their land, labor and capital into cloth production despite the decreased net return (only 11 cents after paying the tax) would be getting about 9 cents less per yard than before. So far as such a tariff might cause Americans to buy home-produced cloth instead of imported cloth, the government would get no revenue even though the price of the cloth was raised somewhat by the tariff. But so far as cloth was still imported, at a price as low as that of the domestically-produced cloth (viz., 21 cents a yard), the government would secure 10 cents on each yard and would secure it chiefly at the expense of the foreigners, whose net price received

would be 9 cents less per yard than if there were no tariff.

It should be reasonably obvious, however, to the unprejudiced student of international trade, that a tariff which at the same time protects a home industry, raises prices of the protected goods hardly at all and secures large revenue for government, is rather a theoretical possibility than a practically attainable goal. For it will hardly ever occur, if it ever occurs, that goods which can be produced at home under conditions of constant cost up to a large output, for nearly as little as their former price when imported, are produced abroad under conditions of increasing cost such that they will continue to be imported in large quantities at almost the same price after the tax is levied as before. In general, a tariff which protects is likely to raise considerably the price of the protected goods. Even if it does not, it is at least likely to substitute home production of these goods for foreign production to such an extent that the government gets no appreciable revenue. If, as a consequence of higher prices, revenue is received by the home producers of these goods, from the consumers, this revenue does not go to the government.<sup>1</sup>

<sup>1</sup> For further consideration of the problems of international trade and protective tariffs and the various possible effects of protection on rent, wages, etc., the reader is referred to books dealing especially with these subjects, e.g., the author's book, *Principles of Commerce*, New York (Macmillan), 1916.

## § 4

*Import Duties Levied Purely for Revenue*

The characteristic of an import duty levied strictly for revenue is that it is intended to get revenue rather than to protect. A strictly revenue duty would not provide any protection at all. It would not divert domestic industry into producing the kinds of goods on which the import duty was levied. The writer recalls once hearing the argument advanced by a person not familiar with economic principles, that a protective tariff is necessary as a means of raising revenue. This view would be, of course, entirely erroneous even if the government had no sources of revenue but tariffs. So far as a protective tariff serves its primary purpose of keeping out foreign goods, it prevents the collection of duties on such goods. Even if foreign goods are not entirely excluded and there is some incidental revenue, this revenue could in every case be greatly increased by adjusting the tariff on a purely revenue basis. A tariff purely for revenue is not necessarily a lower tariff than a protective one. But it is levied in such a way as to avoid, so far as possible, shutting out foreign goods, in order that the maximum revenue may be secured from the tax upon them.

In order that a tariff may not exclude foreign goods,

it may be levied on either of two principles. It may, first, be levied only on goods which cannot, practically, be produced in the levying country, or—which comes to nearly the same thing—it may be levied on goods which cannot be domestically produced except at considerably greater cost than the price of the imported goods. In the latter case, the purely revenue tariff must be low enough so as not to offset the greater cheapness of the imported goods. Thus, if a given kind of cloth can be imported into the United States for 20 cents a yard and can be manufactured in the United States for 50 cents, a tariff of 5 cents or 10 cents a yard would presumably not cause people to buy such cloth from domestic producers. It would, therefore, be a revenue tariff.

But, second, a tariff might be levied on goods which had been imported for only a little less than the cost of producing them at home and the tariff might be very high; yet it might give no protection whatever but be strictly a revenue tariff. Such a tariff would be one accompanied by an equal tax on goods domestically produced. Thus, if the cloth which could be imported at a price of 20 cents a yard (untaxed) would cost 25 cents if produced at home, a tariff of 5 cents or more a yard without any corresponding tax on the home-produced cloth would be protective. Such a tariff would cause production of the cloth at home



even though some other industry or industries could be carried on to greater advantage, i.e., even though the cloth could be got in larger quantities for the same amount of work by trading for it other goods produced at home. But the tariff can be made for 10 cents or 20 cents a yard or any amount more without being protective provided the same amount of tax is imposed on the cloth domestically produced. If the imported cloth is 20 cents a yard before the tax is levied and the tax (of, say, 20 cents) makes it cost 40 cents, it will still have an advantage over the domestically-produced cloth provided a like tax on the latter makes it cost 45 cents. High import duties, when similarly high taxes are levied on the domestically-produced goods, presumably leave the choice of consumers between domestic and foreign goods, just as it was before.<sup>1</sup>

<sup>1</sup> The question may be raised, however, whether this result is quite as exactly achieved if a fixed amount is added, by the tax, to the price of both imported and domestic articles, as it would be by a tax of a fixed proportion of their former values. And, of course, a tariff ostensibly intended solely for revenue may conceivably provide protection for the domestic producers of a substitute article.

## § 5

*Conditions Under Which a Duty Levied Purely for  
Revenue is Borne Exclusively by the People  
of the Levying Country*

The incidence of an import duty is comparable to the incidence of a tax on output of goods. The burden must fall upon the consumers if the goods are produced under conditions of absolutely constant cost<sup>1</sup> or if demand is absolutely inelastic. Thus, suppose a duty levied by the United States, for revenue, upon bananas. If any amount of the goods can be had at a price (excluding the tax) of 20 cents a dozen and if none of the producers of bananas will remain in the business at any lower price—i.e., if cost of production is constant—a tariff of 10 cents a dozen must raise the price by an exactly equal amount, viz., to 30 cents.

But even if production is, as it most likely is in the case of bananas, under conditions of increasing cost, the entire tax will still be shifted upon consumers if the demand is inelastic. For if a lower net price to consumers would cause even a slight decrease in the number of persons and the amount of land and capital devoted to producing bananas, and if demand

<sup>1</sup> See, however, discussion in § 6 of this Chapter (X).

is absolutely inelastic, then demand would exceed supply at any price which failed to give producers the same net returns as if the tariff were not levied. In other words, given inelastic demand the consumers must bear the entire tax.

The money collected through such a tax is, of course, expended by the government which levies it. The tax does not add to the amount of money owed to foreign countries. It presumably does not appreciably affect the relative amounts of money in different countries.<sup>1</sup> It merely takes something from the consumers of the taxed article (or articles) and transfers it to the state.

## § 6

### *Conditions Under Which an Import Revenue Duty Might Rest in Whole or in Part upon Another Country or Countries than the One Levying the Duty*

There are, however, other circumstances, under which the burden may rest, in part, upon persons

<sup>1</sup> The rise of the price of the taxed article might, according to a logical deduction from the theory of the relation between money and prices, lower, almost infinitesimally, the prices of other goods in the taxing country. This, in turn, might lead to a slight temporary increase of exports until the prices of these goods were in the same relation to the foreign prices as before. But the consumers in the taxing country would still, after this inappreciable readjustment, be paying the entire tax.

in the exporting country or countries. Consider our supposed duty on bananas. Suppose, also, demand to be elastic in the taxing country. Then the result of the tariff will be to reduce, somewhat, the net return received by the factors of production in producing countries. So long as consumers pay any part of the tax, their demand will be less than before. This means that the marginal men and the marginal land devoted to banana raising will be turned to other purposes or, in the case of some of the land, perhaps abandoned. But all those who would rather produce bananas or devote their land (or the land they hire) to the production of bananas even at a lower return than before, rather than turn to anything else, will continue to produce bananas even though such a lower return is received. Nevertheless the lower is the net return the smaller will be the output. If the price to consumers rises by the whole amount of the tariff, demand will be reduced and supply must exceed demand. If the net price received by the producers falls by the whole amount of the tax, supply will be reduced and demand must exceed supply. Supply and demand will be equal only if consumers pay more and producers receive less than if the tariff were not levied. Just how the burden would be divided will depend on the conditions of demand and cost in the specific case.

Even, however, if the cost of production of bananas were not an increasing cost in the sense above assumed, some of the tax—conceivably, indeed, more than the tax—might be abstracted from the people of the producing country (or countries). The conditions under which this might happen are somewhat complex and require careful attention.

Let us suppose that the persons and the land engaged in banana production could be diverted to another line (or lines) the product of which would be domestically consumed, and could be so diverted to an indefinite extent without loss (constant cost) if these other goods could be marketed in larger quantities at the prevailing price (or prices). But let us also suppose that practically the only external market for the bananas (or any other goods of the banana-producing country or countries) is the United States. And let us further suppose that the demand for bananas in the United States is extremely elastic—i.e., sensitive to price changes. The tax, by raising the price, diminishes the American demand for bananas. The addition to the price, constituting the tax, goes to the United States government. It does not, therefore, involve any additional obligation in money to the sellers in the banana-producing country (or countries). And since the tax causes a decrease of American demand for the bananas, it must mean

an actual decrease of money obligation to the people of the banana-producing country (or countries). Less money is owed to them, but if their demand for American goods is inelastic and these goods are unobtainable elsewhere—save, perhaps, at much greater expense—they may continue to buy from the United States even though their bananas sell in the United States in diminished quantities. This would mean, in time, relatively more gold and higher prices in the United States and relatively less gold and lower prices in the banana-producing territory. Since the amount of money securable for other goods and in other occupations in the banana-producing territory would now be less than before, banana producers would accept less than before and still remain in the business. Hence, Americans would be getting more for goods exported to the banana-producing territory and paying less for their bananas. Part or all of the tax burden, or more,<sup>1</sup> would rest on the people of the banana-producing areas.<sup>2</sup>

If any one objects to this mode of argument and

<sup>1</sup> See Mill, *Principles of Political Economy*, Book V, Ch. IV, § 6.

<sup>2</sup> If, in the United States, or the other country or countries, or both, the gold standard is not in effect, nevertheless the same results would be reached as regards relative exchange value of goods. See the author's *Principles of Commerce*, New York (Macmillan), 1916, Part I, Ch. VI, §§ 6, 7, 8, and 9, and Part II, Ch. III, § 3 (especially p. 47).



wishes to trace price changes directly to the change in American demand, we shall still reach the same final conclusion. The decreased demand for the taxed bananas will force either a lowering of their price or a reduced sale or both. The latter must drive some of the banana producers into other lines of production. The former will cause some of them to prefer other lines. But this will force down the prices received in these other lines—unless the money which would have been sent to America for American goods is now spent in the banana-producing region, so offsetting the decreased American demand for bananas. Unless this money is so spent, prices will fall in the banana-producing country or countries. But it is clear that this result (*viz.*, a fall of prices in the banana-producing country, or countries) depends upon the people of the banana-producing areas continuing to buy American goods *i.e.*, upon a flow of gold to America. American prices, on the contrary, would rise. Americans producing the goods wanted in the banana-producing areas would find money earnings in general in America and prices in general becoming higher than before and would be unwilling to remain producers of these specific goods except at higher prices than before. With prices in the banana-producing country or countries falling and prices in the United States rising, the amount of bananas that

Americans could get for a given quantity of the exported goods exchanged for them might become greater by enough to partly pay the import duty or to entirely pay it or to more than pay it. In other words, the tax is partly paid, wholly paid, or more than paid by the people of the banana-producing region.

The conclusion above arrived at can be established the more certainly, perhaps, if we assume the trade to be carried on by means of barter and if we assume the payment of the duty to be made in kind.<sup>1</sup> Let us suppose the trade to be of American cloth for Central American bananas and let us suppose it to be, before the tariff is levied, at the rate of 1 yard of cloth (of a given quality) for one dozen bananas, or 10 yards for 10 dozen. But the American demand for bananas is assumed to be elastic and the demand of the Central Americas for cloth made in the United States is assumed to be inelastic. Suppose, now, a duty of 20 per cent. to be levied on the imported bananas and payment to be demanded in kind. If American demand for the bananas is very elastic, sales of bananas

<sup>1</sup> Under these circumstances, Professor F. Y. Edgeworth has concluded, mistakenly so in the view of the present writer, that more loss than the amount of the tax could not be imposed by the tariff-levying country on the other or others. See *Economic Journal*, Vol. VII, p. 397. See, also, criticism by the present writer in *Principles of Commerce*, New York (Macmillan), 1916, pp. 48 and 49, note.

for cloth would greatly decrease provided any attempt were made to shift the burden of the duty upon the American banana consumers. But this means that the people of Central America would not secure the cloth for which their demand is assumed to be inelastic. To secure their cloth they might offer for it, not only the old price of 10 dozen bananas for 10 yards of cloth but also 2 dozen more of the bananas in payment of the 20 per cent. tax. They would then be offering to Americans as individual buyers as many dozen bananas for a given quantity of cloth as before so that Americans should not, it may appear, hesitate to buy these bananas. But what is to become of the extra 2 dozen on each 10 dozen, the 2 dozen collected as a tax by the United States government? If the government needs other things rather than bananas, it must sell these bananas in order to get such other things. But if it sells them, its doing so will increase the available amount of bananas in the country beyond what it would be without the duty. There are now available, therefore, not only the bananas sent in by Central America in exchange for cloth but also the additional bananas paid by the Central Americans to the United States government as a tax in kind in order that they may have the privilege of exchanging their bananas for cloth. But the availability of these additional bananas means that the marginal utility of

bananas to American consumers is less than if bananas were relatively scarce. Even though American demand is elastic in the sense that a higher price would greatly decrease sales, it may not be greatly responsive, by way of increased sales, to a reduced price. In any case, the larger number of bananas cannot be marketed on quite as good terms as could a smaller number. The bananas offered in payment of the tax enter into competition in the American market with the other imported bananas. Bananas will, therefore, have to sell at a lower price than if the tax-collected bananas were not also on the market. The offer of 10 dozen bananas, plus 2 dozen to pay the tax, will fail to secure for the Central Americans the desired 10 yards of cloth. The 2 dozen paid to meet the tax, by entering into competition with the 10 dozen sent over to pay for the 10 yards of cloth, will probably bring it about that the 10 dozen bananas will buy less than 10 yards, e.g.,  $9\frac{1}{2}$  yards of cloth. If, then, demand for the cloth is inelastic, even more bananas may have to be offered in order to purchase the desired amount of cloth. Whether, therefore, the tax is paid in money or in kind, the people of the banana-producing areas may, conceivably, have to pay the entire tax and, in addition, may have to pay more than before for their cloth.

Our conclusions would be the same if the taxing

government wanted bananas for its own use. Getting these bananas by means of the tax it would not have to buy them with the proceeds of income taxes or other internal taxes. It would not have to bid against other consumers to get the bananas. Both individual American consumers and the American government had been, before, offering something for bananas. But after the tax is laid, only individual consumers would be offering anything for bananas and they would not buy as much as they and the government together had been buying. Indeed, with their demand elastic, they would buy even less than before if the cost of the bananas should be at all added to by the tax. The bananas paid to the American government in tax have to be paid by the people of the banana-producing regions else the elastic American demand for bananas would be cut down and the inelastic demand of the banana-producing population for American cloth would not be satisfied. But the bananas wanted by the government had previously to be paid for, by taxes on the American people,<sup>1</sup> presumably through the export of cloth. For this part of their banana export, the banana-producing population would no longer get cloth. But since their demand for cloth is assumed to

<sup>1</sup> Since these taxes need no longer be collected it may be argued that individual consumers could afford to buy more bananas than before. But it is doubtful if most of their saving on taxes would go to satisfy this one desire among many.



be inelastic, they would try to get as much cloth as before and to do this they would have to offer more bananas. They might, therefore, have to offer these bananas at a slightly lower price in terms of cloth, *besides paying the tax*, thus really paying to the United States and its people more than the tax.<sup>1</sup>

It should be emphasized that the assumed conditions under which the burden of an import duty would be paid mostly—or more than paid—by the people of the exporting country are conditions highly unlikely to be realized in practice. That the banana-importing country should have an extremely elastic demand which would contract greatly at slightly increased prices, while the other country (or countries) should have an inelastic demand for the products of the taxing country, is improbable. If this means that the banana-producing country (or countries) is practically limited to the duty-levying country for the sale of its bananas and the purchase of cloth—and it means very nearly such a state of affairs—the improbability becomes almost an impossibility. For the people of any country to expect, then, that an import duty levied to produce revenue will be a burden chiefly on some

<sup>1</sup> Should the government, having collected the tax in kind, destroy the bananas or use them for some new purpose, so that they did not come into competition either directly or indirectly with the other imported bananas, then not more than the amount of the tax could be lost by the people of the banana-producing areas.



other country or countries trading with it, would be foolish. And yet, under the assumed conditions of demand, such a consequence might conceivably be realized.

In passing, attention may be directed to a like conceivable result in the case of the protective tariff. Restriction of imports by (say) the United States, by means of a protective tariff, might tend towards a temporary excess of exports and an inflow of gold. The consequent rise of American prices and slight fall of foreign prices might mean that Americans would get somewhat higher prices for goods still exported and would be able to buy such foreign goods as were not taxed by the protective system, at somewhat lower prices.<sup>1</sup> But the main result would probably be that foreigners would purchase much more largely of each other rather than of us and that, by such restriction, we would lose a valuable trade. And, indeed, as to goods which seemed producible in the United States, such gain from lower foreign prices would probably tend to a demand for an extension of the protective tariff to them also.

<sup>1</sup> See Taussig, *Principles of Economics*, third edition, New York (Macmillan), 1921, Vol. I, pp. 523-526; cf. Brown, *Principles of Commerce*, Part II.

## § 7

*The Incidence of Revenue Duties on Exports*

Let us now consider the possible incidence of duties on the exports of any country. Export duties have not, as a rule, been popular, perhaps because of the common notion that prosperity is gained by discouraging imports but is lost by discouraging exports.

What would be the incidence of a duty on exports, levied solely for revenue? Clearly, if the demand in foreign countries for the goods the export of which is taxed, is very elastic, most of the burden of the tax must fall upon the people of the taxing country. If the taxed goods exported are produced under conditions of increasing cost, a lower net price will drive out some of the marginal production factors. The production factors sufficiently above the margin will remain in even at such lower net returns.<sup>1</sup>

But even if each unit of every factor of production is as ready to leave the industry as each other, the burden of the tax will rest on the people of the tax levying country provided foreign demand for the taxed goods is sufficiently elastic. Suppose the tax to be levied by the United States (after an amendment to

<sup>1</sup> Cf. Bastable, *The Theory of International Trade*, fourth edition, London (Macmillan), 1903. p. 114.

the constitution permitting it) on exports of cloth. Such a tax would cause fewer sales abroad. The purchase, by Americans, of goods from the cloth-buying areas, e.g., of bananas, might for a time continue, especially if American demand for these goods were inelastic. The outflow of money would mean that the American cloth would sell at a lower price while the bananas might sell at a higher price because of the somewhat larger amount of money in the banana-producing territory. Then the people of the United States would be, indirectly, paying their own tax in part or in whole. But the burden would not be exclusively on the producers of the cloth. Indeed, this industry might conceivably be carried on under conditions such that, at any lower return than before relatively to returns in other lines, the factors engaged in it would all withdraw. But the smaller amount of money in the United States would mean lower money returns in all lines carried on there, while higher prices than before would have to be paid for the imported bananas. The lower money income of Americans would be compensated, so far as they consumed American goods, by lower prices of these goods. The burden of the tax would fall upon them in proportion as they were consumers of bananas.

Leaving out the flow of gold and assuming the trade to be barter we would reach a like conclusion. A

tax on the exported cloth would have to be paid, in large part, by the exporting country, else the inelastic demand of its people for bananas would not balance against the elastic demand of the people of the banana-producing areas for cloth. But more than this tax would not have to be paid by the people of the United States. For if the tax were all paid by the people of the cloth-producing country, i.e., the United States, the people of Central America would be getting their cloth at the same price as formerly in relation to their bananas and might reasonably be expected to buy as much of the cloth as if there were no tax. Except that the general level of prices would be, in Central America, slightly higher than before, conditions would be for them the same as if there were no tax. Part or the whole of the burden would, in these circumstances, fall on the people of the levying country. More than the cost of the tax could not so fall.

Consider, now, the case of an export duty when there is an inelastic demand abroad for the goods so taxed. Such an inelastic demand for American cloth might be due, partly, to an American monopoly of cloth production and partly to the existence of a total demand which would be almost the same through a considerable range of prices. Then a tax on the exported cloth might impose a burden on the people of the buying country or countries more than the

amount of the tax. If this taxed cloth is produced, in the United States, by labor, capital and land, most of which would be withdrawn to other industries should the net yield diminish, then in order that the cloth should still be produced, the price must rise so that these factors would get about as much net as before, despite the tax. Otherwise, the inelastic foreign demand would not be satisfied. But such a rise in the price of the cloth would mean an increased flow of gold to the United States and higher money prices and incomes. Hence, a price for cloth higher than before by more than the tax would be necessary in order to keep cloth producers in the business. The people of the United States would then be getting the export tax paid by foreigners and would be getting, in addition, perhaps, more of other goods, e.g., bananas, for their cloth than before. Money prices in the banana-producing areas would tend to be somewhat lower because of the flow of gold consequent on the tax,<sup>1</sup> and this would mean that Americans might get their bananas slightly cheaper than before. But if American demand for bananas proved to be very sensitive to price reduction or to the increased money incomes of Americans, so that more bananas were

<sup>1</sup> This effect would in practice be minimized for Central America by being spread over all the rest of the world outside of the taxing country.

purchased than prior to the tax, then any considerable flow of money into the United States would not take place. If, on the other hand, although higher banana prices might discourage American buying, lower prices would not increase it, then such a tax on the exportation of cloth might make the price of bananas in terms of cloth very favorable indeed to American purchasers of the bananas.<sup>1</sup>

Putting our problem in terms of barter economy, let us suppose that the people of the banana-producing areas, having an inelastic demand for American cloth, pay the entire tax. To do so they will have to sell more bananas. But this will lower the marginal utility of bananas to the American consumers. Hence, that the desired cloth may be secured, more bananas may have to be sent than the number previously sent plus the number sent to pay the tax.

A government levying an export duty on a product not securable in any appreciable amounts in other countries is in a position somewhat analogous to a monopolist fixing a price on his product. It is true that the fact of some commodity being produced only in one country does not in itself mean monopoly or a high price for the commodity. The different producers and producing factors within such a country

<sup>1</sup> Note discussion in Mill, *Principles of Political Economy*, Book V, Ch. IV, § 6.



may compete actively for export sales. A price to yield higher returns than are yielded in other lines in that country would tend to divert industry into such a relatively remunerative line; and such diversion would tend to keep down the price of the output of such a line. But a high export tax levied by a government tends to raise the price of the goods to foreign buyers—particularly if they have an inelastic demand for such goods and cannot secure them elsewhere—without increasing, or even while decreasing, the output. It is not the producers of the exported goods who get the money from the tax, but their government. If the tax is, in the last analysis, paid by foreign purchasers of the taxed goods, there is a clear gain to the people of the exporting country. For they receive the benefit of government services the cost of which they do not bear. But this gain is general to the people of such a country. It gives the producers of the goods on which an export duty is laid no relative advantage. We need not suppose, therefore, that it increases the output of these goods in relation to the country's other products. Individual producers of such exported goods have no monopoly. But the government, by virtue of an export tax, may, under the assumed conditions, reap a gain analogous to monopoly profit. And the same problem may conceivably face such a government that

faces a monopolist, the problem of deciding what rate will yield the largest net gain.

There may be many cases where a government could get something from foreigners through the levy of an export tax. Even if the taxed goods are securable elsewhere, they may not be securable elsewhere in considerable quantities except at an appreciably higher cost. But it is unlikely that there are any considerable number of cases where a government can thus realize large amounts at the expense of foreign consumers. For there are, usually, alternative sources of supply significant enough so that any considerable export tax—if the burden could not be borne by the home producers—would cost the taxing country most of its export trade. If it were easy and practicable for governments to raise money by imposing taxes the burden of which would rest on foreigners and if this were generally understood, the game would be one at which all might play with, perhaps, net advantages to none. The actual possibilities, however, are not very promising.

## § 8

### *Summary*

In this final chapter we have considered taxes on imports and taxes on exports. Taxes on imports are

frequently levied for protection rather than for revenue. They are then intended to prevent or greatly to curtail the importation of the foreign goods subject to the tax and to give the home market to home producers. Industry is thus diverted out of the lines it would otherwise follow, into less profitable lines. There is a net loss of productive power and of total consumption.

An import duty levied only to secure revenue for government may be on goods not produced in the levying country or may be levied at an equal rate on imported and on the competing domestically-produced goods. Such a duty on imports will, if demand for the imported goods is relatively inelastic or if there are other available markets of importance for them, rest almost wholly on the consumers of these goods in the tax-levying country. If demand for the taxed goods is very elastic, if they cannot easily be marketed elsewhere, if the goods exported by the levying country are not easily obtainable from other places and if the foreign demand for these goods is comparatively inelastic, then a considerable part or all of such a tax may conceivably rest on foreigners. Indeed, it is conceivable—though highly improbable—that the people in the foreign country or countries concerned may suffer a loss greater than the tax.

A duty on exports may also, under various assumed

conditions, rest chiefly on the people of the levying country or on foreigners. Here, too, it is conceivable that foreigners may bear a loss in excess of the tax. But, in practice, the people of each country are likely to have to bear, in the main, the expense of their own government and are not likely, either by import or by export duties, to be able to impose these expenses in any great degree upon foreign consumers of their products. Instead, either import or export duties would be likely in nearly all cases, to rest on consumers, in the tax-levying country, of imported goods. Such duties therefore are, in effect, like commodity taxation in general. Consumers are almost certain to bear them in large part and may bear them almost wholly.

## CHAPTER XI

### CONCLUSION

We began our inquiry into the probable effects of the adoption of various revenue-raising policies, by considering the incidence and effects of government finance through monetary inflation. Such inflation we saw to be, really, a sort of concealed taxation. Next we examined into the nature and endeavored to comprehend the principal consequences of government borrowing. The remainder of the book was devoted to a consideration of the incidence and effects of taxes generally recognized as such. We considered taxes on commodities or sales under conditions of competitive and monopolistic production and under conditions of constant, increasing and decreasing cost. We then discussed the ultimate incidence of taxes levied directly upon or shifted to labor incomes or wages, and, immediately after this, the incidence of compulsory workmen's insurance. Taxes on capital and on the income of capital were next considered; then taxes on land and taxes on sales of land and capital and

on loans. Finally, the possible incidence of import and export duties was studied and, in that connection, brief consideration was given to the purposes and effects of a so-called "protective" tariff.

Are we prepared to make any positive application of our investigations? The intention of the author is to make no such application, but to leave for the reader the making of whatever application may seem to him proper. One comment of a negative nature in regard to this matter may, however, be hazarded, for the purpose of bringing out with greater distinctness the point of view from which this book has been written.

The comment in question is that there is no obvious support in the argument of the book for the so-called "ability" or "equal sacrifice" theory of taxation. Whether there is, in the book, any not obvious but nevertheless discoverable support for this theory, we need not here attempt to say. Our purpose has been to arrive at cause and effect relations, to find out, so far as we could, what effects various kinds of taxes would be likely to produce. We have considered possible effects on production and prices, on capital accumulation, on population, on land values, on trade. No study of this sort can possibly, in and of itself, determine for us what sort of tax system we want. We may desire that commodity prices shall be raised,



that capital accumulation shall be furthered or retarded, that trade shall be discouraged, that land values shall be high—or low. We may desire a society in which there is a comparatively equal or a comparatively unequal distribution of wealth. We may desire a society in which the obstacles in the way of the ambitious poor who are anxious to get a start in life and to acquire some property are very great or a society in which these obstacles are reduced to a minimum. We may desire a society in which incomes received are in some proportion to services rendered, or a society in which they are inversely proportional to services rendered, or a society in which they depend upon position or prescription, or a society in which they are in proportion to needs. To say that taxation ought to impose "equal sacrifice" on all citizens—ought to be in proportion to "ability"—may be to assume, not only that possible effects on the rate of accumulation are of relative unimportance, but also that nothing should be changed of the general conditions determining the distribution of wealth and incomes, or, at least, that taxation should never be levied with any regard to effecting or contributing to any such change.

In short, the kind of taxation a given person will favor depends both upon what sort of results he wants accomplished—what kind of economic society seems to

him ideal—and upon his understanding of cause and effect relationships in the field of taxation. Sometimes persons disagree regarding the kind of taxation they favor because they disagree regarding the results which they wish to secure. But, in other cases, there is disagreement regarding the desirability of various taxes because some or all of the parties to the controversy do not understand what effects these taxes would tend to produce. They support or oppose taxes of various kinds, ignorantly, favoring what would produce effects the reverse of those they desire, and opposing what would produce the very consequences they profess to want.

The present volume is not intended to lay down ideals of the organization of economic society. Elsewhere the author has indicated, somewhat, his own point of view.<sup>1</sup> Here he has endeavored to keep his point of view in the background, avoiding not only any pronouncement as to how welfare is to be secured, but, even, any pronouncement as to whether the common welfare, or the welfare of some limited group (vested rights?) or no welfare at all, should be a goal of effort. The purpose, here, has been to combat only

<sup>1</sup> See relevant passages and chapters in *Economic Science and the Common Welfare*, Columbia, Mo. (The Missouri Book Company), 1923. See, also, *The Taxation of Unearned Incomes* (The Missouri Book Company), 1921.

ignorance and fallacious logic in the realm of cause and effect. Indeed, science, as such, can, in this field,<sup>1</sup> do no more. If this purpose has been accomplished, though imperfectly and in but a limited degree, the study made will not, perhaps, have been wholly useless.

<sup>1</sup> In some inquiries, laws of coexistence are sought after as well as laws of sequence.



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